AN EXPLORATION OF SELF-AWARENESS OF AUTOBIOGRAPHICAL MEMORY DEFICITS IN FORENSIC MENTAL HEALTH SERVICE USERS WITH PSYCHOSIS AND ITS IMPACT ON SERVICE ENGAGEMENT

AND CLINICAL RESEARCH PORTFOLIO

VOLUME I

(Volume II Bound Separately)

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Chapter 1: Systematic Review

A systematic review of engagement and compliance in forensic mental health services in service users with psychosis: the impact of treatment and client characteristics

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Abstract

***Background*:** Engagement and the related concept of compliance are often highlighted as an important factor in clinical outcome. Previous literature reviews have investigated correlates of these within psychotherapy and medication adherence; however, they have excluded forensic services due to challenges of involuntary treatment.

***Aims*:** This paper aims to specify how the terms engagement and compliance are defined and measured and to review their correlates and predictors within forensic mental health services for people with psychosis.

***Methods*:** Studies were identified by searching electronic databases and hand-searching the reference lists of these papers and the content specialist journals. Studies were included if they measured engagement or compliance with a treatment, if participants presented with psychosis and if the treatment setting was a forensic mental health service, criminal justice setting, or general prison population. Studies were rated for quality.

***Results*:** Seven papers were included in the final review. Engagement and compliance were generally defined in behavioural terms, with engagement reflecting a higher level of responsibility and participation. A variety of measures were identified, including self-report, clinician-rated, and concrete measures (urine specimen and attendance). Factors shown to have associations with engagement and compliance included demographic characteristics (age, ethnicity, and community), clinical characteristics (substance misuse, functioning, insight, attitudes, and previous compliance), and treatment characteristics (perceived acceptability, satisfaction, side effects, supervision, and method of administration).

***Conclusions*:** There may be a need to separate the concepts of engagement and compliance within a forensic mental health context due to the enforced and supervised nature of compliance being at odds with the process of engagement. This review presents initial findings of correlates of engagement and compliance and allows for consideration of how to explore these relationships further in the future. Further knowledge is required to establish the nature of these relationships and to assist in clinical judgement regarding positive risk taking with the aim of rehabilitation.

Introduction

Poor engagement and compliance with treatment are commonly used interchangeably with the term adherence and are common challenges within forensic mental health services (Drieschner & Boomsma, 2008). While compliance and adherence are defined as a behavioural expression or subtype of the wider concept of engagement, there is no unitary definition of client engagement. Instead, the operational definitions used include attendance, participation, and compliance, alongside highlighting that the therapeutic relationship is central to the definition of engagement (Holdsworth, Bowen, Brown and Howat, 2014). Although many papers stress that the improvement of engagement and compliance are important factors in improving clinical outcome, there are few studies that suggest ways in which to do this, or identify the factors that contribute to these behaviours.

Existing knowledge

Incomplete compliance or adherence with a treatment plan can significantly reduce the effectiveness of any medical intervention, with data to suggest that up to 75% of patients fail to fully adhere to prescription instructions (Haynes, Taylor & Sackett, 1979). In mental health services 58% of patients report not taking their medications as prescribed and 53% have reported not taking their prescribed medications at all (Ginath, Antonovsky & Cohen, 1983). Engaging service users with psychosis can present substantial challenges (Tait, Birchwood & Trower, 2003), with evidence to suggest that up to 50% of people in this population are not fully compliant with medication (Perkins, 2002). If people are not fully compliant then they will not be getting the maximum therapeutic benefit from their treatment. There is a known relationship between engagement and outcome within mental health services, with better engagement having a wide range of positive outcomes including direct benefit to the service user in terms of reducing the severity of symptoms (LeBeau, Davies, Culver & Craske, 2013) and higher staff morale (Mensinger, Diamond, Kaminer & Wintersteen, 2006). Perkins (2002) also reported that lack of compliance with treatment correlates with higher relapse risk and fewer positive outcomes.

Kemp, David and Hayward (1996) described a model of seven levels of adherence with medication in people with psychosis, and utilised these levels to form a seven-point scale on which to measure adherence. These points are:

(1) Complete refusal

(2) Partial refusal
(3) Reluctant acceptance (e.g. only because treatment is compulsory)
(4) Occasional reluctance (e.g. may question the need for treatment)
(5) Passive acceptance
(6) Moderate participation (some interest/knowledge, no prompting required)
(7) Active participation (accepting of medication and responsibility)

This model encourages the clinician or researcher to move away from seeing compliance as a binary concept, where the person is compliant or not, and to begin to consider it along a spectrum.

There is one recent systematic review examining how engagement is defined and assessed for adults receiving psychotherapeutic interventions (Holdsworth et al, 2014). This highlighted that engagement was inconsistently defined and assessed, with wide variations in the methods utilised in its measurement. The indices utilised to record engagement included attendance at appointments, participation in therapy sessions, compliance with homework, and the therapeutic relationship.

What influences engagement and compliance?

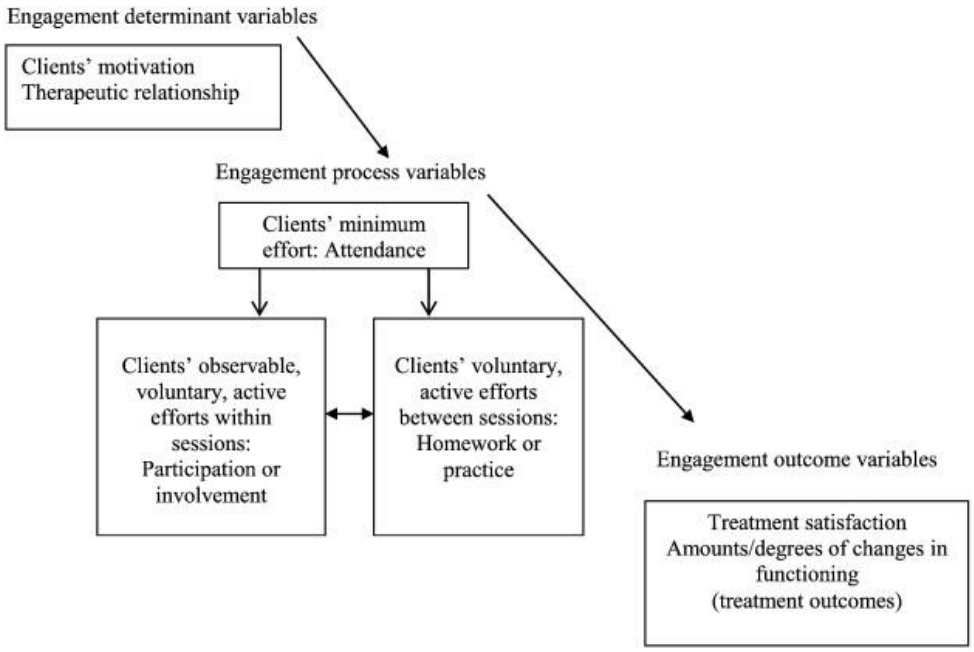
Existing literature has identified a number of factors associated with compliance and with service engagement. Gray, Bressington, Lathlean and Mills (2008) organised factors that impact on medication adherence into six main categories as follows:

- Illness related factors (e.g. level of symptoms)
- Treatment related factors (e.g. side effects, method of administration)
- Clinician related factors (e.g. authoritative attitude, lack of collaboration)
- Patient related factors (e.g. age, gender, attitudes about illness/treatment)
- Environmental factors (e.g. family beliefs about illness/treatment)
- Cultural factors (e.g. ethnicity, cultural beliefs about illness/treatment)

Holdworth et al. (2014) reviewed factors associated with service engagement and focused on psychotherapeutic interventions. Similarly to the factors related to medication adherence described by Gray et al. (2008), they considered factors relating to the service user, the therapist, and the treatment. Data demonstrated that the therapeutic relationship

had the greatest impact upon the engagement of the service user, and that the service user's capacity to address their problems also showed an association. They concluded that 'engagement is a multi-faceted process, influenced by interrelating client, therapist, and treatment factors' (p1). The authors proposed a model of client engagement in psychotherapy – see Figure 1.

Figure 1. Model of client engagement in psychotherapy



This model demonstrates the factors that influence engagement over the therapeutic process.

Forensic mental health

Holdsworth et al. (2014) deliberately excluded studies focussing on forensic settings as they argued that court ordered treatment would mean that engagement would be a different process in this population, due to the fact that service users may not have consented or volunteered to treatment. The presence of compulsory treatment orders, detentions, and other involuntary practices may reflect a lack of insight or capacity for the individual to make appropriate decisions regarding their treatment and mental health. A lack of such insight has been shown to directly impact upon engagement in people with psychosis (Ghaemi & Pope, 1994), with psychosis being particularly prevalent within forensic mental health services. In some estimates up to 10% of men and 14% of women in a general

prison population display signs of psychosis (Singleton, Meltzer & Gatward, 1998) in comparison with 0.4% of the wider population (Meltzer, Gill, Pettigrew & Hinds, 1995). The high rates of diagnoses such as psychosis, and their related complex presentations and needs, are additional reasons as to why engagement may be slightly different in this population than that in general mental health services.

It is especially important to consider ways to improve outcome in forensic mental health services, as a positive outcome in these services has benefits beyond those to the individual. In addition to a reduction in clinical symptoms, positive outcomes have been shown to reduce the risk of further criminal activity (Swartz, Swanson, Hiday, Borum, Wagner & Burns, 1998) thus benefitting society as a whole. The importance of service engagement in this population is highlighted by its inclusion within historical, current clinical, and future risk factor in the structured clinical judgement risk assessment tool, the HCR-20 (HCR-20 V3; Douglas, Hart, Webster, & Belfrage, 2013).

The current review

This paper aims to answer similar questions to those posed by Holdsworth et al. (2014) in a forensic population, and to develop an understanding of the ways in which engagement in a forensic setting may differ to that in general mental health services due to issues surrounding non-voluntary and court ordered treatments.

The questions which will be addressed are as follows:

(1) How are engagement and compliance defined and measured in the current psychosis and forensic mental health literature?
(2) What contributes to engagement and compliance in forensic mental health treatment in people with psychosis?
(3) What is the relationship between engagement and outcome?

Methods

This review was conducted utilising guidance of the Centre for Reviews and Dissemination (2009) and the PRISMA Statement (Moher et al., 2009; Liberati et al., 2009).

Search Strategy

Electronic databases included in the systematic research included PubMed and Embase, via OVID online, and PsychInfo, Medline, PsychArticles, and Psychology & Behavioural Sciences Collection, via EBSCO.

The following search terms were utilised, combined with the Boolean operator 'OR':

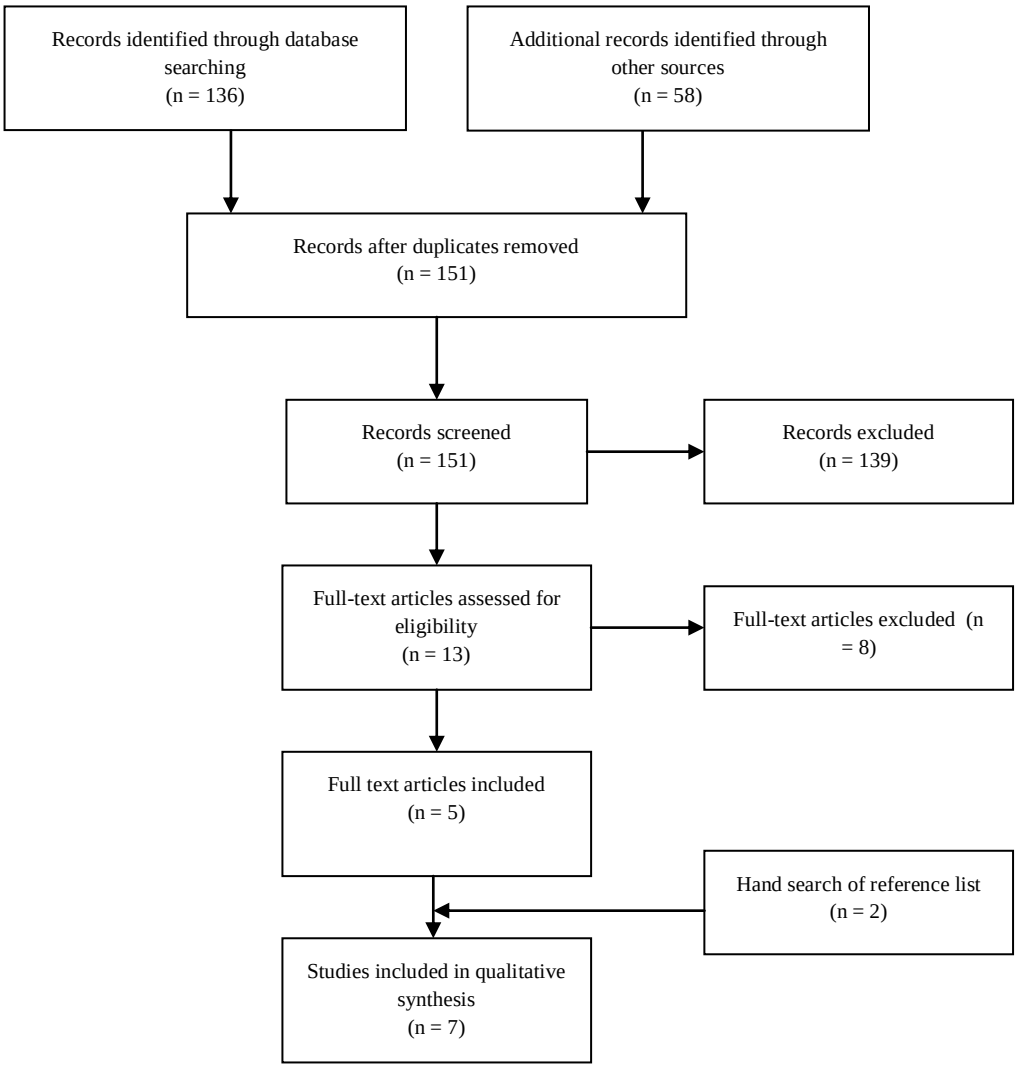
- Psychosis, schiz*
- Predict*, correlate*
- Forensic, offend*, crim*, prison*, "secure setting"
- ?engage*, help?seeking, ?adhere*, ?compl*

These searches were then combined using the Boolean operator 'AND'. A hand search of relevant journals from the past five years was also conducted. These included Law and Human Behavior, Behavioral Sciences and the Law, British Journal of Psychiatry, Journal of Forensic Psychiatry and Psychology, and American Journal of Psychiatry. This resulted in a total of 194 articles which was reduced to 151 after the removal of duplicates. The titles and abstracts of these articles were screened to determine eligibility based on the following inclusion criteria:

a) Participants included people with a diagnosis of a schizophrenia spectrum disorder and receiving care in forensic mental health services (inpatient or outpatient), criminal justice or the general prison population
b) The reported intervention was focused on mental health or offending behaviour
c) A measure of engagement was included as an outcome or dependent variable

Papers were excluded if they were not published in English. Reports, review papers, book chapters, theses, conference abstracts and unpublished studies were also excluded. Where it was unclear if the criteria were met, the full paper was obtained. A second researcher reviewed all papers obtained at this point and 100% agreement was reached on inclusion. A hand search of reference lists of papers found to be eligible at this point revealed a further 2 papers. See Figure 2 for details of this process.

Figure 2. Flowchart of search results



Data Extraction

In order to answer the questions of the review, a narrative synthesis method was utilised. This was structured using guidance of Popay et al. (2006) whereby the review summarised the main findings of the included papers, explored relationships in the data, considered explanations for the patterns of findings, and assessed methodological quality.

To facilitate this process a data extraction sheet was devised (see Appendix 1.2). This included descriptive information regarding the papers; their aims, definition of engagement/compliance, design, and outcome measures. The findings of Holdsworth et al. (2014) and a preliminary review of the papers were used to devise a checklist of factors that may be identified as being correlates of engagement. This list was then used to identify

if each factor was in fact a correlate of engagement, and to identify how many papers reported each relationship.

Quality Appraisal

In order to assess for the quality of the papers the Crowe Critical Appraisal Tool (CCAT) (Crowe & Sheppard, 2011) was utilised. This tool contains 54 items across 8 categories, resulting in a maximum score of 40. The categories are; *Preliminaries, Introduction, Design, Sampling, Data Collection, Ethical Matters, Results,* and *Discussion.* This tool is suitable for both qualitative and quantitative studies, and has been shown to have inter-rater reliability of 0.74 (Crowe, Sheppard, & Campbell, 2012). For the purposes of this review a score of 75% or greater was rated as high quality, 60%-74% was rated as moderate quality, and below 60% was rated as low quality. Subgrades were also considered in order to assess methodological quality. Four of the seven papers included were reviewed by a second rater. Inter-rater agreement was to a high level, with raters agreeing on 98% of items. Disagreements were resolved by discussion and consensus rating increased to 100%.

Results

Study Characteristics

The included studies utilised a variety of designs in order to investigate aspects of service engagement and compliance. One study (Drieschner & Boomsma, 2008) presented a novel scale for measuring engagement, and reported its psychometric properties. Two papers examined the effects of interventions aimed at improving engagement or compliance (Swartz, Swanson, Wagner, Burns & Hiday, 2001; Livingston, Nijdam-Jones, Lapsley, Calderwood & Brink, 2013) and the remaining four papers were observational, reporting characteristics associated with engagement and compliance (Farabee, Shen & Sanchez, 2004; Gray, Bressington, Lathlean & Mills, 2008; Shah, Hull & Riley, 2009; Dickens, Suesse, Snyman &Picchioni, 2014).

Drieschner & Boomsma, 2008

The Treatment Engagement Rating (TER) scale is described, alongside its psychometric properties and norms. This rating tool was designed to measure engagement for forensic

out-patient treatment. The authors recruited from five Dutch forensic outpatient treatment centres (N=328) and included both males and females (90% male). There are nine components to the TER scale covering participation, use of sessions, openness, efforts to change behaviour, efforts taken by the patient to improve their situation, making sacrifices, goal directedness, reflecting between sessions, and a global evaluation of engagement. Participants completed a self-report measure of motivation to engage in treatment ($MET_{TMS;}$ Drieschner & Boomsma, in press a) and 64 therapists rated the TER, as well as a further clinician-rated measure of motivation to engage in treatment ($MET_{T;}$ Drieschner & Boomsma, in press a). The MET is a previously validated measure (Drieschner & Boomsma, in press b). They report adequate inter-rater reliability, good internal consistency, and correlations with previously validated measures of motivation to engage in treatment.

Swartz, Swanson, Wagner, Burns & Hiday, 2001

This paper aimed to establish if an out-patient commitment (OPC) programme, or method of medication administration, impacted upon adherence to treatment in involuntary patients with psychotic or major affective disorders (N=258). The OPC programme involves a court order whereby the patient must adhere to their treatment, and will receive supervision to facilitate this. Participants included both males and females (53% male). This was a randomised controlled trial where possible, as the most violent offenders (N=45) could not be randomised and had to be placed in the OPC programme. In order to measure adherence a 21-item scale was constructed with the following ratings: ratings of oral medication adherence from 3 sources at 3 time points (9 items), ratings of depot medication adherence from 3 sources at 3 time points (9 items), and a case manager's rating of compliance with scheduled appointments at 3 time points (3 items). The paper does not report any information relating to reliability or validity of this scale. They reported that people who underwent a sustained period of supervision were more likely to adhere to overall treatment, including attendance at appointments and medication compliance. People were also more adherent if their medication was administered orally. They found no relationship between insight or attitudes (measured using the Insight and Treatment Attitudes Questionnaire, ITAQ; McEvoy, Apperson, Applebaum, Ortlip, Brecosky, Hammill, Geller & Roth, 1989) and adherence.

Limitations of this study include that the design was not a true RCT and the OPC was not standardised in terms of duration. The authors, however, argue that if the inability to truly randomise groups was to have had an impact it would have been in the opposite direction to that observed. This is because prior to the intervention those who received the OPC programme were less compliant than controls, and yet at outcome the OPC group were shown to be more compliant. 12% of people approached declined to participate, which may have biased results. Some effort was made to identify if those who participated differed from those who did not and it was noted that people under the age of 45 were more likely to participate than those over 45. No differences were found in relation to sex, race, or diagnosis. From this data, it is difficult to make any inferences as to whether the sample was biased.

Livingston, Nijdam-Jones, Lapsley, Calderwood & Brink, 2013

This study aimed to investigate if an intervention that included a peer support programme, a patient advisory committee, and a patient led research team, impacted upon patient engagement with treatment received in a forensic hospital. The authors collected both quantitative and qualitative data, using a longitudinal approach. They recruited patients of a Canadian forensic hospital (N=30) and included both males and females (80% male). They did not find that the programme had any significant effect on service engagement, measured using the Singh O'Brien Level of Engagement Scale (SOLES; O'Brien, White, Fahmy & Singh, 2009); a self-rated measure with high reliability. However, they did report that peer support demonstrated positive effects on personal recovery and internalised stigma.

Out of 172 patients in the hospital it is estimated that 90 were considered to be eligible, and 30 agreed to participate. No efforts were made to establish if the 30 participants were a reliable sample to represent that larger population and so it is important to be cautious when generalising these results. The use of self-report measures in a population where treatment is involuntary may cause participants to be reluctant to express their true attitudes and beliefs, and therefore may affect findings.

Farabee, Shen & Sanchez, 2004

This study examined the impact that programme characteristics, specifically level of coercion, type of medication, and presence of supervision, had on medication adherence. This was an observational study where recruited participants were parolees in Californian psychiatric out-patient clinics (N=150). The study included both males and females (76% male). They found that the level of coercion perceived by the patient was not associated with adherence but that the use of atypical antipsychotics and the presence of a guardian significantly improved adherence to medication, measured with a urine test.

It is possible that unmeasured characteristics had an impact upon results. For example, it is likely that participants who agreed to receive guardian supervision differed to those who did not, and clinical factors that have not been reported would have informed decisions regarding antipsychotic prescriptions. Also, using a urine test to measure adherence means that the person need only have taken their medication for a short period before testing, and does not necessarily reflect consistent adherence.

Gray, Bressington, Lathlean & Mills, 2008

The aim of this paper was to examine relationships between medication adherence and demographic, social, and clinical factors in prisoners who are prescribed antipsychotic medications. It used an observational design and the sample consisted of males and females (N=44; 82% male) across three UK prisons. In order to measure adherence they utilise Kemp et al. (1996)'s seven-point scale, described above. They found that better adherence was associated with the individual's insight. This included insight into illness, need for treatment, and positive beliefs about the impact of medication, measured using the Insight Scale for Psychosis (ISP; Birchwood, Smith, Drury, Healy, Macmillan & Slade, 1994). Adherence was also associated with positive attitudes regarding medication (measured using the Hogan Drug Attitude Inventory, DAI-30; Hogan, Awad & Eastwood, 1983), having medication administered orally, finding treatment acceptable, a lack of side effects (with the exception of weight gain), and not being in possession of their own medication. A regression model then showed that 52% of adherence was predicted by motivation to take medication, the belief that medication is helpful, and experiencing weight gain as a side effect (that is, those who experienced weight gain were more compliant).

Bias in recruitment is a strong limitation of this study where 21% of those approached did not participate, and a convenience sample was used. This sample is likely to reflect a more engaged population than the forensic population as a whole. The use of a self-rated measure of engagement may also have impacted upon results as participants may have been inclined to moderate their responses in order to appear more well, and more engaged, than they actually were.

Shah, Hull & Riley, 2009

This study aimed to investigate whether people's beliefs about their psychosis were associated with their engagement with treatment, in a forensic service. This was an observational study and a convenience sample was used. Participants were all men (N=30) who were resident in two regional secure units in the UK. The treatment involved medication alongside a range of therapies delivered by psychiatrists, nurses, occupational therapists, psychologists, social workers and education teachers. The authors measured engagement utilising the Service Engagement Measure (SEM; Hall, Meaden, Smith & Jones, 2001), a clinician-rated measure, and a modified version of the self-report University of Rhode Island Change Assessment (URICA; DiClemente & Hughes, 1990). The SEM has been shown to have good test-retest reliability, high inter-rater reliability, and good face validity, and the URICA had been reported as having adequate internal consistency. They found no association between perception of illness and engagement on the SEM but found non-significant trends that patients' perceptions of treatability, chronicity, and the likelihood of relapse all positively correlated with engagement on the URICA.

Given the non-significant results and that the findings were contradictory according to which measure was used, it is not possible to reliably report an association. The measures used were not validated within a secure setting and it is possible that, although each measure was aimed at engagement, they could be measuring different constructs. This study has a small sample size and does not report power. In addition, sampling was biased as close to 50% of those approached did not take part, meaning it is difficult to generalise results to the whole population.

Dickens, Suesse, Snyman &Picchioni, 2014

This paper investigated whether ward climate was associated with patient and clinical characteristics (including service engagement) in secure wards of a UK psychiatric hospital (N=63). They included both male and female patients (44% male). Service engagement was measured by session attendance and ward climate was measured using the Essen Climate Evaluation Schema (EssenCES; Schalast, Redies, Collins, Stacey & Howells, 2008). In relation to the aims of this review, they reported that lower levels of engagement were associated with greater therapeutic hold (the extent to which the climate is perceived as supportive of patients' therapeutic needs).

A major limitation in this study is that the authors were unable to account for periods of leave when measuring attendance. This may mean that the patients who were less unwell, and therefore have more frequent periods of leave, appear to be less engaged as they would have attended fewer sessions.

Table 1 summarises the studies included in this review.

Table 1. Summary of study characteristics, definition of engagement/compliance, methods of assessment, and quality

Authors	Sample	Treatment type	Research aim	Operational definition of engagement	How engagement is assessed	CCAT Quality rating
1. Swartz et al. (2001)	N=258	Outpatient commitment programme	To assess if outpatient commitment improves treatment **adherence** in people with severe mental illness	Treatment adherence (including medication and psychosocial interventions)	A composite adherence scale	75%
2. Farabee et al. (2004)	N=150	Antipsychotic medication	To gain understanding of programme level factors associated with parolees' **adherence** to psychotropic medication in outpatient settings	Medication adherence	Urine specimen	65%
3. Drieschner & Boomsma (2008)	N=328	Forensic outpatient mental health treatment	To develop a therapist rating instrument to enable a quick, reliable and valid assessment of treatment **engagement** in a forensic outpatient setting	A patient's behaviour which is desirable or necessary for treatment to be effective, and under the patient's volitional control	Treatment Engagement Rating scale (TER)	83%
4. Gray et al. (2008)	N=44	Antipsychotic medication	To explore relationships between **adherence** and demographic, prison, social and clinical factors in prisoners taking antipsychotic medication	Medication adherence	Observer ratings (7- point scale; Kemp et al., 1998)	73%
5. Shah et al. (2009)	N=30	Forensic inpatient mental health treatment	To investigate if patients' beliefs about psychosis are associated with **engagement** in treatment	Treatment adherence (including medication and psychosocial interventions)	Service Engagement Measure (SEM) University of Rhode Island Change Assessment (URICA)	70%
6. Livingston et al. (2013)	N=30	Patient engagement intervention in a mental health setting	To evaluate an intervention aimed at improving **engagement** and support recovery	Active participation and meaningful involvement of patients in a range of activities and decision making processes	Singh O'Brien Level of Engagement Scale (SOLES),	78%
7. Dickens et al. (2014)	N=63	Psychiatric inpatient mental health treatment	To explore whether and how patients' demographic and clinical characteristics (including **engagement**) are associated with ward climate	Treatment adherence (including medication and psychosocial interventions)	Attendance at therapeutic sessions	85%

How are engagement and compliance defined?

Three of the papers specify that they investigate adherence or compliance. Of these three, two investigate only medication compliance (Farabee et al., 2004; Gray et al., 2008), and the third investigates overall treatment compliance, including attendance at treatment sessions (Swartz et al., 2001). The remaining four papers state that they are investigating engagement. Of these, two define engagement in terms of adherence and compliance with treatment (Shah et al., 2009; Dickens et al., 2014). The further two papers consider engagement at a more complex level. Livingston et al. (2013) define engagement as the 'active participation and meaningful involvement of patients in a range of activities and decision making processes' (p133). Drieschner and Boomsma (2008) stated that engagement is 'a patient's behaviour which is desirable or necessary for treatment to be effective and under the patient's volitional control' (p299-300). The general consensus is that engagement and compliance are behavioural concepts, whereby a person follows their treatment and medication plans; this is certainly the case for compliance. When considering engagement there is more discrepancy in the literature as some papers conceptualise the term in the same simplistic manner as compliance, while others reflect a more complex process where the individual accepts a level of autonomy and responsibility for their treatment.

How are engagement and compliance measured?

A wide variety of methods are used to measure both engagement and compliance. This ranges from relatively basic, yet objective, methods such as obtaining a urine specimen to check for presence of the relevant medication and documenting session attendance to more elaborate and potentially subjective rating scales.

The most simplistic rating scale used was Kemp et al.'s (1998) seven-point clinician-rated scale which has been described previously. Other clinician-rated measures included the Service Engagement Measure (SEM; Hall et al., 2001), the Treatment Engagement Rating (TER; Drieschner & Boomsma, 2008), and a measure devised specifically for the study involved (Swartz et al., 2001). Two self-rated measures were used which were the Singh O'Brien Level of Engagement Scale (SOLES; O'Brien, White, Fahmy & Singh, 2009) and the University of Rhode Island Change Assessment (URICA; DiClemente & Hughes, 1990). While no measure was utilised on more than one occasion, there were a number of

similarities in the factors used. Many scales had some measurement of adherence to treatment or medication, and it was common that attendance and degree of personal or voluntary effort were also measured. Additional factors used less often included openness in discussing feelings, assuming a level of responsibility or commitment for treatment, and perceiving a benefit of treatment. It was noted that the TER (Drieschner & Boomsma, 2008) focussed solely on these higher level engagement factors and did not include a measure of more basic compliance behaviours.

What are the factors/correlates that contribute to engagement and compliance?

A range of factors, alongside the presence or absence of an association with engagement or compliance, were identified from the data extraction sheet. A vote counting method was then used to compare results of the different studies. This is presented in Table 2.

Table 2. Characteristics associated with variables underlying operational definitions and assessments of engagement

Predictor	**Engagement index**	**Association with engagement/compliance**	
		Yes/ no	**Nature of association**
Demographic characteristics			
Age	Treatment adherence[1] Medication adherence[4] Medication adherence[2]	Yes No Yes	+ve +ve
Gender	Treatment adherence[1] Medication adherence[4] Medication adherence[2]	No No No	
Ethnicity	Treatment adherence[1] Medication adherence[4] Medication adherence[2]	Yes No Yes	African Americans showed poorer adherence than White or Other ethnicities African Americans showed poorer adherence than White, Hispanic or Other ethnicities
Marital status	Treatment adherence[1]	No	
Social support	Treatment adherence[1]	No	
Level of education	Treatment adherence[1] Medication adherence[4]	No No	
Annual income	Treatment adherence[1]	No	
Community of residence	Treatment adherence[1]	Yes	Those in rural areas showed higher adherence than those in urban areas
Homelessness	Treatment adherence[1]	No	
Victim of crime	Treatment adherence[1]	No	
No. of previous convictions/imprisonments	Medication adherence[4]	No	
Length of time in prison	Medication adherence[4]	No	
Clinical characteristics			
Primary diagnosis	Treatment adherence[1]	No	
Duration of illness	Medication adherence[4]	No	
Previous treatment compliance	Treatment adherence[1] Medication adherence[4]	No Yes	 Those who had previously attended appointments well, had better adherence

Substance abuse	Treatment adherence[1]	Yes	Those with substance misuse problems were less adherent
Personality Disorder	Treatment adherence[1]	No	
Level of functioning	Treatment adherence[1]	Yes	+ve
Symptoms	Treatment adherence[1] Medication adherence[4]	No No	
Insight	Treatment adherence[1] Medication adherence[4]	No Yes	 +ve
Attitudes	Treatment adherence[1] Medication adherence[4]	No Yes	 +ve
Previous psychiatric admissions	Treatment adherence[1] Medication adherence[4]	No No	
Perceptions of illness - Chronic - Liable to relapse - Treatable	 Self report measure (URICA)[5] Clinician rating (SEM)[5] Self report measure (URICA)[5] Clinician rating (SEM)[5] Self report measure (URICA)[5] Clinician rating (SEM)[5]	 No No No No No No	
Treatment characteristics			
Type of medication	Medication adherence[4] Medication adherence[2]	No Yes	 Atypical antipsychotics had better adherence than typical
Medication dose	Medication adherence[4]	No	
Duration of treatment	Medication adherence[4]	No	
Administration method - Depot or oral - Self administered	 Treatment adherence[1] Medication adherence[4] Medication adherence[4]	 Yes Yes Yes	 Those on a depot medication showed higher adherence than oral Those on oral medication were more adherent than depot Self administered showed less adherence than staff.
Level of supervision	Treatment adherence[1] Medication adherence[2]	Yes Yes	+ve +ve
Level of coercion	Medication adherence[2]	No	
Side effects - Overall - Weight gain	 Medication adherence[4] Medication adherence[4]	 Yes Yes	 -ve +ve
Treatment acceptability	Medication adherence[4]	Yes	+ve
Treatment satisfaction	Medication adherence[4]	Yes	+ve
Peer support programme	SOLES[6]	No	
Patient involvement - Patient advisory committee - Patient led research tem	 SOLES[6] SOLES[6]	 No No	
Ward climate	Attendance at therapeutic sessions[7]	Yes	-ve

[1]Swartz et al. (2001), [2]Farabee et al. (2004), [4]Gray et al. (2008), [5]Shah et al. (2009), [6]Livingston et al. (2013), [7]Dickens et al. (2014)

The study by Drieschner and Boomsma (2008) has not been included in this part of the review as they did not report correlates of engagement.

Demographic Characteristics

Of the demographic characteristics, engagement and compliance do not appear to vary according to gender, marital status, perceived social support, level of education, annual income, homelessness, being the victim of crime, number of previous convictions, or length of time spent in prison.

One study (Swart et al., 2001) concluded that those from a rural community showed higher treatment adherence to those from an urban community. There is also evidence that the older people are, the more engaged they are in services. Of the papers that investigated this, two found a positive correlation between age and compliance (Swartz et al., 2001; Farabee et al., 2004), and one found no association (Gray et al., 2008). A similar picture has emerged with regards to ethnicity. Two papers (Swartz et al., 2001; Farabee et al., 2004) found that African-Americans were less likely to comply with treatment when compared to White or Hispanic counterparts while Gray et al. (2008) found no impact of ethnicity.

Clinical Characteristics

With regard to clinical characteristics no association with engagement or compliance was reported for primary diagnoses, duration of illness, presence of co-morbid personality disorder, current symptoms, or number of previous psychiatric admissions.

It appears that there is a negative correlation between substance misuse and compliance where people with substance misuse problems show lower levels of adherence than those without. Data also suggests a positive relationship between overall functioning and compliance, where higher levels of functioning on the Global Assessment of Functioning Scale (GAF; Endicott, Spitzer, Fleiss & Cohen, 1976) correlated with higher adherence to treatment plans.

Conflicting evidence exists regarding the impact of previous compliance where Swartz et al. (2001) found no relationship between previous compliance with medication and current compliance with overall treatment, and Gray et al. (2008) reported that those who had previously shown good attendance had better compliance with medication.

Again, there is inconsistent evidence in relation to insight and attitudes where Gray et al. (2008) found that the individual's insight into their illness as well as positive attitudes regarding medication were related to compliance with medication. Swartz et al. (2001) found that there was no relationship between insight or attitudes and compliance with treatment plan.

Shah et al. (2009) report discrepancies relating to perceptions of illness, where patient-rated measures show a relationship while clinician-rated measures do not; however, the relationship between the patient-rated measure and engagement was not significant.

Treatment Characteristics

When considering treatment characteristics no relationship with engagement or compliance was shown for medication dose, duration of treatment, level of coercion, patient involvement in the service, or level of organised peer support. There is evidence that the higher the acceptability of the treatment to the patient, as well as the patient's level of satisfaction in relation to the treatment, the better their adherence (Gray et al., 2008). Also, higher levels of supervision were related to better compliance with treatment and medication. Ward climate, specifically one deemed to be supportive of patients' needs, was found to be negatively associated with attendance at therapeutic sessions.

Type of medication also appears to have some association with compliance, with Farabee et al. (2004) reporting that atypical antipsychotics were related to better adherence, in comparison to typical antipsychotics. Gray et al. (2008) reported no association between medication type and medication adherence, when considering individual drugs, as well as typical vs. atypical antipsychotics.

The method of medication administration showed contradictory results with one paper (Swartz et al., 2001) reporting that those on oral medication had poorer compliance than those on depot medication, while another paper (Gray et al., 2008) reported the opposite. Gray et al. (2008) also reported that people who administered their own medication were less adherent than those who had medication administered by a staff member.

Lastly, the experience of side effects was linked to lower compliance with medication (Gray et al., 2008). The opposite was shown to be true for the experience of weight gain as

a side effect, where participants who experienced weight gain showed higher levels of compliance.

Does better engagement/compliance lead to a better outcome?

None of the papers reviewed directly address this question, or specify how outcome may be measured. Given that the majority of the studies are observational they have not collected follow up information that would allow for this question to be answered. However, the majority of papers cite previous research outwith the area of forensic mental health that shows that better compliance and engagement are linked with better clinical outcomes.

Quality Appraisal of Included Studies

The quality ratings on the CCAT ranged from 65% - 85%. Four papers were rated as high quality (Dickens et al, 2014; Drieschner & Boomsma, 2008; Livingston et al, 2013; and Swartz et al, 2001). The further three papers were rated as moderate quality (Gray et al, 2008; Shah et al, 2009; Farabee et al, 2004). Please see Appendix 1.3 for detail of subgrades for each paper.

The subgrade in which papers consistently lost points was *Ethical Matters*, where papers failed to report information regarding ethical approval, funding, or conflicts of interest. When considering quality issues that could impact upon the findings of this review, papers that dropped points for *Design* did so due to a failure to consider confounding variables and sources of potential bias. They also utilised measures that had not been validated within forensic populations. *Sampling* issues included small sample sizes and the use of convenience sampling, meaning results may not generalise to the larger population. For *Data Collection*, points were lost for failure to manage non-participation and a lack of steps taken to ensure the quality of measurement used.

Discussion

How does the existing literature define and measure engagement and compliance?

The literature reviewed both defines and measures engagement and compliance in behavioural terms, with reference to the amount a person adheres to their medication and

wider care plan. The broader term of engagement seems to be used to describe a spectrum of behaviours, with compliance being a crucial part of this at lower levels of the spectrum. Higher levels of engagement include not only the act of compliance but also a level of 'meaningful involvement' as described by Livingston et al. (2013) and 'volitional control' stipulated by Drieschner and Boomsma (2008). This spectrum is similar to the seven levels of adherence model by Kemp and colleagues (1996), although their model refers only to medication adherence; the behaviours described in level seven, and that are partially present in level six, reflect the individual moving beyond basic compliance to being more engaged in their own treatment, taking more responsibility for their recovery.

A range of methods are used to measure engagement and compliance. When only compliance is being considered studies have used concrete measures such as attendance or urine specimens. When full engagement is being investigated they have utilised a measure or scale that allows for the subtle differences between engagement and compliance to be reflected. This has included factors such as the level of responsibility and voluntary participation and effort.

There appears to be a need to re-specify the terms engagement and compliance when applying them within a forensic mental health context. Within general mental health services an individual demonstrates a basic level of engagement (taking a level of responsibility and voluntary participation) by simply complying. This is not the case within forensic services as patients are under compulsory orders to comply with treatment plans. It is therefore possible for an individual to be compliant without any level of engagement. It remains to be seen if an individual may be engaged in services without complying with treatment plans.

What are the factors/correlates that contribute towards engagement and compliance?

Demographic Characteristics

It is possible that age has a weak effect on compliance as a large sample size was required in order to detect it. This is evidenced by the findings that the two papers that established an association (Swartz et al., 2001; Farabee et al., 2004) had much larger sample sizes than the one that did not (Gray et al., 2008). When considering both age and ethnicity it is also possible that the country in which the study was conducted played a role as the papers reporting an association were conducted in the USA, while the paper finding no association

was conducted in the UK. It is unlikely that this discrepancy was caused by methodological issues as both Gray et al. (2008) and Swartz et al. (2001) utilised similar clinician-rated measures. Although gender was not found to be associated, it is difficult to make any strong statement regarding this as the studies included had few females within their populations. It is also the case that the gender composition of the samples may be completely reasonable given the profile of the population being examined, and so the ratio of males to females should not be thought of as a bias in sampling.

Clinical Characteristics

There is evidence that people who misuse substances are less engaged in treatment. In addition, the better a person is functioning in general, the better their compliance. These two characteristics may be related as people who are not functioning well are more likely to be utilising substances to manage their difficulties; however, the data from the studies included does not directly address this and so this cannot be confirmed.

Conflicting evidence regarding the impact of previous compliance may suggest that compliance with medication reflects a lower level of engagement than attendance at sessions and compliance with overall treatment plan. This provides further support to the idea discussed previously, where the final stage of Kemp et al. (1996)'s model of adherence may be described as engagement. This is also reflected by the concept of 'engagement process variables' described by Holdworth et al. (2014). The authors state that the minimum effort towards engagement is attendance, and further engagement is characterised by the level of effort shown by the client within and between sessions.

It may be that the discrepancy found in relation to insight and attitudes regarding treatment is due to the measures used being sensitive to different concepts; however, both papers state that they are measuring insight into the need for treatment. An alternative explanation is that one (Swartz et al., 2001) investigated compliance with treatment, and the other (Gray et al., 2008) investigated compliance with medication. This may further support the idea that compliance within a wider treatment plan, including attending sessions and group work, involves a higher level of engagement than simply adhering to medication.

Inconsistencies relating to perceptions of illness where patient-rated measures of engagement show a trend while clinician-rated measures do not, may be explained by the fact that patients may feel pressured to report higher levels of engagement in order to be

seen to be complying with services. Clinician-rated measures are likely to be a more accurate reflection of behaviours and therefore a more reliable measure than patient-rated ones. It is important to note that the relationship between the patient-rated measure and engagement was not shown to be significant. This, combined with the discrepancies described, means that it is not possible to draw any conclusions from the evidence available.

Treatment Characteristics

Medication: Higher levels of medication acceptability and satisfaction with treatment were positively related to adherence. People experiencing side effects, with the exception of weight gain, showed lower levels of compliance. Gray et al. (2008) suggest that the patient may interpret weight gain as a sign that the medication is being effective, and so be more likely to adhere to it. They also speculate that weight gain may not be viewed as having such a negative impact on functioning due to the sedentary nature of prison or hospital life.

The discrepancy regarding type of medication may be explained by the method used to measure adherence. Gray et al. (2008) used the 7-point scale of Kemp et al. (1996), while Farabee et al. (2004) used urine analysis to test for the presence of the appropriate drug. The binary aspect of the latter method, as well as the fact that participants need only have taken the medication once in close proximity to the time of testing, would mean that participants could have been marked as 'compliant' with far lower levels of adherence than in the former method, where compliance over their full time in the service would be considered. Both studies also report relatively low numbers of people being prescribed typical antipsychotics and so it is difficult to infer any meaning from these findings.

High levels of supervision appear to be related to better compliance. This is reinforced by findings by Gray et al. (2008) where people who administered their own medication were less adherent than those who had medication administered by a staff member. This appears to be opposed by findings within the same paper that those on depot medication had poorer compliance than those on oral medication. As depot medication is by nature administered by staff, whereas oral may be administered by either method, it may be reasonable to assume that adherence would be higher for those on depot medication. A possible explanation for the inconsistent results is that depot medication is usually prescribed to those who have poor adherence to oral medication, and so those in the depot group are

likely to be less compliant in general. An alternative consideration is that while compliance may be higher with depot and other staff-administered medications, full engagement may not be evident until the person takes responsibility for their own medication. Clinically, when a person is complying well with staff-administered medications, it may be important to consider increasing the level of responsibility gradually, taking a positive risk that initially compliance may reduce.

Wider treatment: When considering compliance with treatment, beyond solely medication, the literature begins to allow for consideration of characteristics of activities or interventions designed to have an effect on engagement or compliance. In these interventions higher levels of supervision were once again related to adherence. Clinically, it is important to note that this may not be a pure equivalent of engagement; Kemp et al. (1996)'s model describes that higher levels of adherence reflect a higher level of personal responsibility. This process may not be facilitated by high levels of supervision.

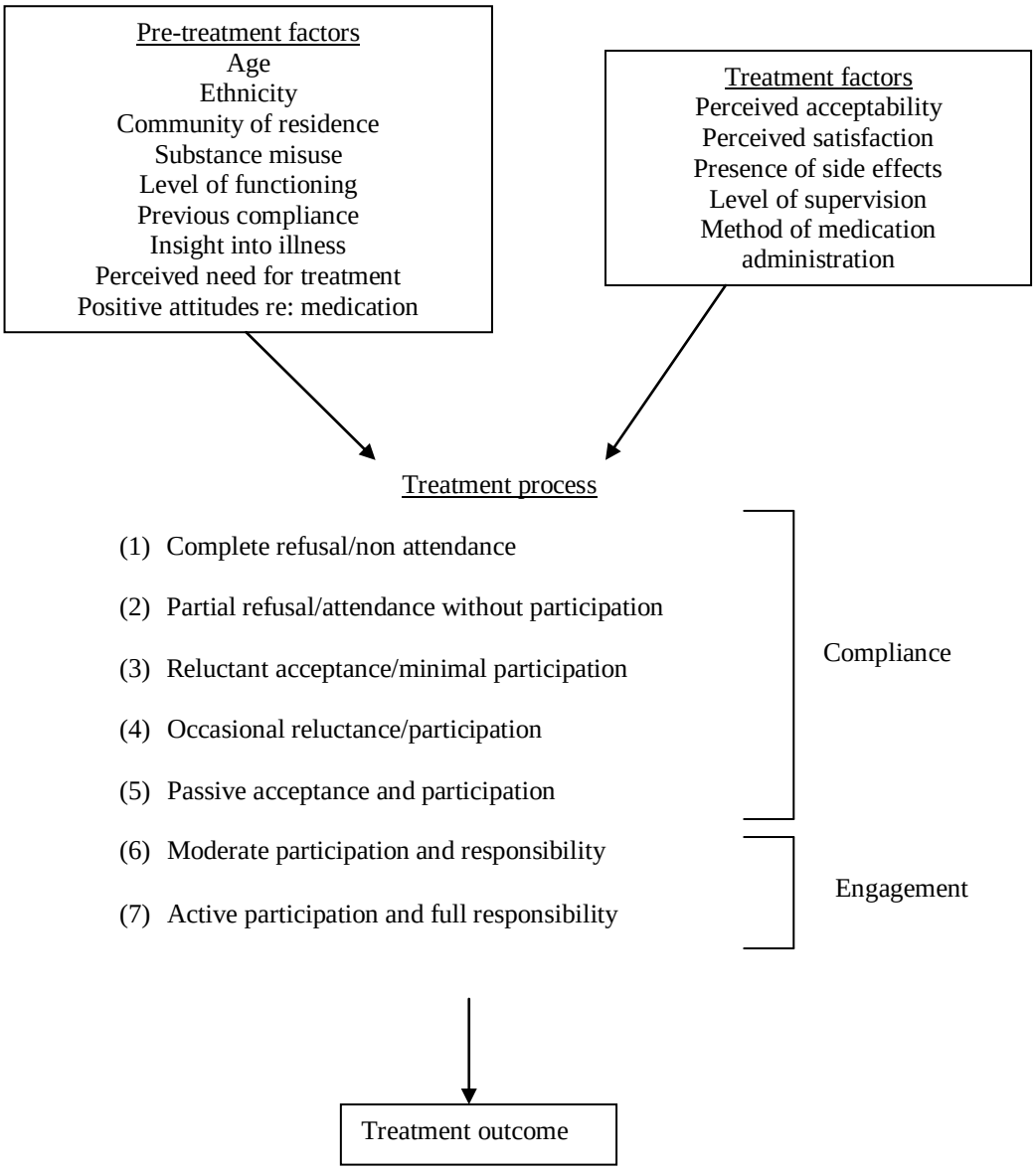
The finding that a ward climate focussed on supporting patients' therapeutic needs was negatively associated with engagement was in the opposite direction to that hypothesised by the authors of the relevant study (Dickens et al., 2014) and is likely due to a methodological issue where periods of leave impacted upon the measurement of session attendance. This means that it is not possible to draw any conclusions from these findings. Although level of organised peer support was found to have no effect it feels important to highlight that level of perceived support outside of that provided by the service was not investigated.

Does better engagement or compliance lead to a better outcome in forensic MH care?

It may be reasonable to assume that previous findings from general mental health services that better engagement and compliance are linked with better clinical outcomes, and lower relapse rates, are applicable within forensic mental health. However, it is important to consider that many people in forensic services are treated under compulsory orders, and as discussed previously engagement and compliance may be independent constructs within forensic mental health. This may mean that full engagement is not necessary for the person to comply with their treatment plan to a level that would support positive clinical outcomes, although if the ultimate goal of the service would be rehabilitation and the reduction of services a level of personal responsibility would be crucial.

Given that forensic mental health services provide both medical and psychosocial interventions it may be helpful to combine the two models previously described, augmenting them with factors highlighted in this review. Figure 3 was devised in order to attempt to draw these findings together.

Figure 3. Model of engagement in forensic mental health services



Limitations

One consistent issue with the papers included in this review is that it is likely that only the most engaged people would have consented to take part in the relevant research. This is a risk of bias issue which draws the question of whether the sample included actually

represents the full range of the forensic mental health population, and therefore whether the findings can be generalised to the population as a whole. The limited number of papers in this area means that further research is required before any of the findings can be confirmed. Given the challenges in publishing negative results, the current review is likely to have been biased towards positive findings. There are additional factors that may be associated with engagement that were not discussed in this review as they have not been studied in the current literature. Amongst many others these may include illness factors, offence type, and the effect of inpatient or custodial care versus outpatient or community care.

Future considerations

In order to establish if engagement and compliance are in fact separate processes within a forensic context, future literature should attempt to assess differences between those who comply with treatment and those who are engaged in services. Longitudinal study would be beneficial in identifying if people who comply progress to being people who engage, or if people can engage without being fully compliant. This review will be beneficial in informing such research as it suggests that compliance may be measured with relatively concrete methods such as medication adherence (potentially through urine analysis) or attendance at treatment sessions. It is recommended that the wider term of engagement is measured using a standard rating scale, such as the TER (Drieschner & Boomsma, 2008), that incorporates factors that reflect the level of participation and responsibility required for engagement, without using factors commonly used in measuring compliance. This will allow for the terms to be conceptually separated and measured independently. It would also be interesting to consider which of engagement or compliance lead to better outcomes, either in terms of recidivism or symptom reduction.

Although many factors have been highlighted as being associated with engagement, it is important to note that causality has not been established. Future research should focus on the nature of these relationships, which would then allow for the creation of interventions to improve engagement and compliance. This review would suggest any such intervention should focus on increasing insight into the person's illness and the benefits of treatment, as well as making attempts to improve overall functioning and reduce substance misuse. It is likely that supervision may facilitate compliance, but the nature of supervision means that it may in fact be detrimental to true engagement. Future research is needed to determine

predictors of true engagement so that services can make a reliable judgement as to when to reduce supervision and allow the individual to take further responsibility for their own treatment. This would allow for better rehabilitation of the individual and reduce the demand on services.

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Chapter 2: Major Research Project

An exploration of self-awareness of autobiographical memory deficits in forensic mental health service users with psychosis and its impact on service engagement

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Plain English Summary

Title

An exploration of self awareness of autobiographical memory deficits and its impact upon engagement in psychological services, in service users of forensic mental health services with a diagnosis of psychosis.

Background

Evidence shows that people with a diagnosis of psychosis have deficits in autobiographical memory (AM). That is, when compared to a healthy population, they are less able to recall memories related to events in their own lives. In addition, they have poor awareness of deficits in general cognitive abilities. It is therefore predicted that they will also have poor awareness of their deficit in AM. At present, it is unclear if this deficit in awareness is specific to AM or is caused by a known deficit in what is termed metacognitive ability (the ability to think about the thoughts and feelings of the self and others). Alternatively, there could be a more general cognitive problem causing the issue. Deficits in these areas are predicted to cause problems for engagement in services as many of these skills, such as the ability to reflect on personal events, thoughts, or feelings, are involved in psychological therapy. This paper seeks to examine this with clients in a forensic mental health setting due to the clinical and societal benefits of improving clinical outcomes in this area.

Aims

·Establish if there is a relationship between poor self awareness of AM functioning and metacognitive ability or general cognitive functioning

·Determine if crime-related memories differ from general AM, due to associated distress or a wish to distance oneself from an offence history

·Identify if any of these factors impact upon engagement in services

Methods

Service users of Glasgow's and Lanarkshire's forensic mental health services, both community and inpatient services, with a diagnosis of psychosis were invited to participate. Those with known significant cognitive deficits or current substance misuse were excluded. Participants were asked to complete assessments relating to their cognitive functioning. They were interviewed to obtain a measure of AM and metacognitive ability. They were also asked to rate how good they perceived their AM memory to be, and how well they could remember their crimes. Staff rated service engagement using a published questionnaire.

Main findings

Participants were more able to recall recent events compared to events in their early adulthood or childhood. They were also more able to recall events related to their offending histories than they were other life events. Their ability to think about their own thought processes and those of others was at a lower level than that previously observed in healthy controls, and there was a trend suggesting that this metacognitive ability was related to ability in AM. There was no relationship between AM or metacognition and service engagement.

Conclusions

We provide preliminary evidence of an association between AM ability and metacognitive ability. However, methodological limitations, such as a small sample size, may challenge the accuracy of this. This supports the need for a larger investigation, and suggests methods which may allow for similar research to be progressed in the future.

Abstract

Background

People with psychosis display difficulties with autobiographical memory (AM). They also show poor awareness of deficits in cognitive ability; however, it is not yet known if this extends to awareness of deficits in AM. It is unclear if any awareness deficit is specific to AM or is part of a more general deficit in metacognitive ability. Alternatively, awareness deficits could be attributable to executive functioning problems. Deficits in these domains are also predicted to disrupt engagement in services.

Aims

We aimed to test the degree to which patients were aware of deficits in AM and the extent to which this awareness, and their AM ability, were related to metacognitive ability. We also aimed to identify if AM for crime-related memories differed to that for general events and to study the impact of these factors on engagement in services.

Methods

AM and metacognitive abilities were indexed using the AMI and the MAS-A. Awareness of AM abilities was operationalised as the discrepancy between self-ratings and actual performance. Cognitive functioning was also tested using a digit span, story recall, and ToPF. Staff members rated the service engagement of each participant using the SES.

Results

Participants recalled recent events better than events from early adulthood or childhood. They judged that they were able to better recall offence histories than other life events. They exhibited a more impaired metacognitive ability than observed in a previous sample of healthy controls, and the results display a non-significant trend towards AM ability being related to metacognitive ability. Engagement was unrelated to metacognition or AM.

Conclusions

We present preliminary evidence of an association between AM ability and metacognition; however, there are methodological limitations. This shows signs that there may be a benefit to conducting a larger sample size study in this area. It also allowed us to pilot and evaluate the methods, identifying ways in which research could be progressed in the future.

Introduction

While previous literature has shown that people with psychosis have difficulty in recalling facts and events from their personal lives (Berna et al., 2015) as well as difficulty in reflecting upon their own thought and cognitive processes (Lysaker, Buck and Ringer, 2007) only preliminary evidence exists that links these two deficits (Palmieri, Dimaggio & Gasparre, 2012, cited in Dimaggio et al., 2012). The clinical impact of these deficits also remains to be investigated. This study hopes to address these issues within the area of forensic mental health.

Autobiographical memory

One specific aspect of cognitive functioning known to be affected in psychosis is that of autobiographical memory (AM) (Berna et al., 2015). This term refers to a person's recollection of personal facts and events. AM problems can manifest as an over-general style of retrieval and recall difficulties that are significantly worse than impairments in general memory ability (Wood, Brewin & McLeod, 2006). Features of AM in this population include: memories often "lack clear space and time boundaries"; they are "made sense of through the use of intellectualisation and moral rules, without a nuanced sense of what actually happened"; there can be limited detailed information about sequences of events and people involved; conversations recalled can seem to follow a set pattern rather than reflect the true dialogue; "the narrative theme of the memory may be redundant"; and that the memories "lack a pictorial quality" (Dimaggio et al., 2012; p2). These features reflect the absence of autonoetic aspects of AM, that is, they lack the reliving aspect of the recollective experience (Wheeler, Stuss & Tulving, 1997).

It has been suggested that these issues may contribute to, or interact with, the symptoms of psychosis as they could function to maintain delusional beliefs, negatively impact upon social relationships by impairing theory of mind (Bentall, Corcoran, Howard & Blackwood, 2001) and prevent effective problem solving (Pillemer, 2003; Dimaggio et al., 2012). In addition, Wood et al. (2006) hypothesise that difficulties in AM retrieval may lead to disturbances in the concept of self and contribute to the "inner-outer confusion" that increases problems with reality testing and related attempts to make sense of the world.

Metacognition, mentalizing, and self-awareness

Evidence of impaired metacognitive ability (the ability to think about thoughts, i.e. the mental processes involved in representing your own thoughts and feelings, and those of others) is well recognised in people with psychosis. For example, Derntl et al. (2009) have shown that psychotic patients can display deficits in all three components of empathy (emotion recognition, perspective taking and affective responsiveness). To be empathic, a person must have the ability to generate a mental model of another's emotions and experiences, a process sometimes referred to as mentalizing. Lysaker et al. (2007) provide evidence of severe problems in people with psychosis with recognising other peoples' perspectives, emotions and thought processes.

In addition, people with psychosis have been shown to have poor awareness of their own cognitive deficits (Medalia & Lim, 2004) and specifically that they over-estimate their cognitive abilities in comparison to healthy controls (Medin & McLeod, unpublished data). Self-awareness is an aspect of mentalizing and of metacognitive functioning (Flavell, 1979) and preliminary evidence suggests that the over-general retrieval style of AM in psychosis is linked to problems in mentalizing (Palmieri et al., 2012, cited in Dimaggio et al., 2012).

Functional impact of deficits

Conway, Singer and Tagini (2004) propose that AM serves two separate processes: adaptive correspondence and self-coherence. Adaptive correspondence refers to the way in which the memory is initially encoded in order to match goals and demands at the time of the experience, while self-coherence relates to the memory after the experience, and to the demand to preserve a stable sense of the self and the wider world. They argue that deficits in AM functioning may reflect a failure in either of these systems to meet their respective demands in an appropriate fashion. Hence, problems may occur either when there is a failure to accurately encode the information or when the content of the memory does not match the person's sense of self or of the world.

One area in which this may be particularly evident is that of forensic mental health where a high proportion of service users have a diagnosis of psychosis and traumatic histories. There is also wide variation in the literature when reporting recall for personal crime episodes but at present it is unclear why this may be. Stone (1992) considered that high

levels of arousal experienced alongside traumatic and criminal events may directly inhibit the encoding of AM and protect the individual from the impact of re-experiencing or recalling distressing memories. In apparent opposition to the hypothesis of Stone (1992) McLeod, Byrne and Aitken (2004) examined the fidelity of memories for crime in people in the general prison population. They suggested that the experience of trauma may not be a factor in preventing the acquisition of memories but highlight that, whether consciously or not, people in this population may attempt to distance themselves from their crimes, or to distort or forget memories. They also raise that many offenders report high levels of dissociation, of which poor recall is a factor, for events related to their crimes and highlight that there are legal functions of poor AM (as many people use a defence of automatism, i.e. diminished responsibility due to impaired memory for the event).

There is additional evidence that metacognitive processes may be deployed to resolve or manage threats to the self, for example, Medalia and Lim (2004) suggest that lesser metacognitive ability (here "metacognitive ability" is used by Medalia and Lim to describe the individual's perception of their cognitive ability) protects the individual's self-worth and self-esteem and is therefore a self-serving bias.

Service engagement

Service users with a diagnosis of psychosis have been shown to be difficult to engage in mental health services (Tait, Birchwood & Trower, 2003). Ghaemi and Pope (1994) attribute this to poor insight into illness. However, Tait et al. (2003) reported that it was not insight, but a "sealing over" recovery style, that impacted upon engagement. "Sealing over" involves the patient minimising their symptoms and the impact that they have on their life. This response is also characterised by the display of little curiosity into their illness and its impact.

Medalia and Lim (2004) suggest that poor insight into cognitive functioning will prevent engagement in specific psychological therapies. If a person does not have an awareness of their symptoms and their impact, or an accurate, detailed recollection of events in their past, they will not be able to make use of therapies that utilise these factors within the work. Dimaggio et al. (2012) also discuss the impact of poor insight on service engagement and suggest that a person's poor metacognitive ability may mean that they are unable to reflect on not only their own mental state, but that of others; a crucial factor in many forms of

psychological therapy which aim to promote metacognitive ability as part of the therapeutic work. A person who has adopted a "sealing over" style, or who does not recognise that they are experiencing difficulties in their mental wellbeing, is both unlikely to seek help and to participate in activities designed to alleviate their issues.

Engagement in forensic mental health services is especially crucial as it has been shown to reduce the risk of further criminal activity (Swartz et al., 1998a). This means that it is particularly important to clarify factors that impede engagement in forensic mental health services for service users with psychosis as it will not only assist in facilitating recovery but will also minimise the risk of further offending. As treatment in this area is likely to have a degree of focus upon an individual's offence history, and their understanding of this, a deficit in AM may further impede engagement. If an individual does not have a clear recollection of their crimes, or of difficult past experiences, they are unlikely to engage in services that may focus on these events.

Aims/Research questions

At present it is unknown whether people with psychosis have a similar deficit in awareness of their AM functioning, as that found in general cognitive functioning by Medin and McLeod (unpublished data). As such, it is yet to be established if an awareness of AM ability is linked to an ability to mentalize, given that a lack of content in AM retrieval would provide little information on which to base an understanding of the self. Without awareness that one's memories can be inaccurate, mistaken, distorted, or subject to modification over time, it is unlikely that a person will engage with a therapeutic process that involves discussing and analysing past events. However, this needs to be tested. A principal aim of this study was to test the degree to which patients were aware of deficits in AM and the extent to which this was related to metacognitive ability or general cognitive functioning. We also aimed to identify if AM for crime-related memories differed to that for general events. The impact of these factors on engagement in forensic mental health services by individuals with psychosis was also under investigation. We aimed to examine relationships between engagement and deficits in AM, and the ability to access metacognitions, specifically self-awareness of AM ability.

Hypotheses

Primary hypothesis

We predict that poorer AM functioning will correlate with metacognitive deficits in the domain of Self-Reflectivity.

Secondary hypotheses

We also predict that:

- Patients with psychosis will show impaired AM functioning relative to normative data and also that there would be a significant discrepancy between perceived abilities and actual performance on a standardised test of AM (the AMI).
- Study participants with psychosis will show low metacognitive ability in comparison to the general population.
- AM recall will be poorer for crime related events than for other personally experienced events.
- Better AM ability and greater self-awareness will positively correlate with engagement in mental health services.

Methods

The study used a within-subjects cross-sectional design.

Participants

Participants with a diagnosis of a schizophrenia spectrum disorder were recruited from community and inpatient adult forensic mental health services of NHS Lanarkshire and NHS Greater Glasgow and Clyde. Participants had to be at least 18 years of age and there was no upper age limit. People with a recognised serious cognitive deficit or a documented or self-reported history of head injury with loss of consciousness were excluded. This was achieved through discussion with the referring professional and the initial interview with the participant. Intoxication with alcohol or illicit substances at the time of testing and any illicit substance use within the preceding 24 hours also led to exclusion. In addition, those without adequate command of English were excluded, as were any participants that had been assessed with the same study measures in the past year.

Recruitment

Screening discussions were held between the staff team and the researcher to identify eligible participants. Once identified, a staff member discussed the project with the service user, provided them with an information sheet (see Appendix 2.2), and gained verbal consent for the researcher to contact them. Written informed consent was obtained prior to participation (see Appendix 2.3). Participation took place over one or two sessions, depending on the preferences of the participant.

Sample size

This is the first study to test the link between metacognition and awareness of cognitive abilities and AM. In the absence of a prior data set on which to base an effect size calculation, we used Lysaker et al.'s (2005) study of metacognition and insight into illness in people with a diagnosis of schizophrenia. Given the exploratory nature of this study, we considered that Lysaker et al.'s study was sufficiently similar due to its examination of similar constructs. They report a positive correlation between metacognitive ability (measured using the MAS-A) and insight into illness (measured using the Scale to Assess Unawareness of Mental Illness, SUMD; Amador et al., 1994) (r=0.35). Therefore, for the purposes of a power calculation, Lysaker et al. (2005)'s effect size of 0.35 was used. The power calculation was computed using G-Power software. A minimum of 46 participants were required for this study to have power (>0.8) to detect a relationship between MAS-A subscale scores and AM discrepancy scores.

Measures

Demographic information

Information was collected regarding age, gender, diagnosis, and current medications (see Appendix 2.4).

Test of cognitive functioning

We based our cognitive test battery on one used in a similar study of AM functioning in people with psychosis (Wood, Brewin & McLeod, 2006):

- *Digit Span* (Lezak, 2004) – a widely used measure of auditory short term working memory and executive functioning. It has been shown to have a high level of both

internal and test-retest reliability; r=0.7-0.9 (Conway, Kane, Bunting, Hambrick, Wilhelm, & Engle; 2005).

- *Story Recall* (BMIPB, Coughlan, Oddy & Crawford, 2007) – this includes immediate and delayed recall abilities. This subtest has been shown to have high inter-rater reliability; r=0.9.
- *Test of Premorbid Functioning – UK version (ToPF-UK; Weschler, 2009)* – a test of pre-morbid IQ that has been shown to have test-retest reliability of r=0.89-0.95 and good validity when compared to the WAIS-IV VCI scale; r=0.75.

Autobiographical Memory Interview (AMI; Kopelman et al., 1990)

In this task participants are asked to recall personal facts and events from childhood, early adulthood and recently. This results in a score of ability of "Personal Semantic" (PS) memories and of "Autobiographical Incidents" (AI) across the three time periods. The AMI has been shown to have good inter-rater reliability (with correlations between 0.83 and 0.86) (see Appendix 2.5).

Rating scales

In order to assess self-awareness of AM ability participants were provided with a brief description of AM prior to testing and asked to rate their ability to retrieve AMs on a five-point scale ranging from perfect, to good, to neither good nor bad, to some ability, to no ability. In addition, they were asked to rate their ability relative to that of the general population, also on a five-point scale, with the options of very high, above average, average, below average, and very low. After completion of the AMI they were asked to rate how well they thought they had done on the test, using the same scales as pre-assessment. This method of assessment has been utilised in previous studies with psychosis (Medin & McLeod, unpublished) and more commonly in dementias (Banks & Weintraub, 2008; Barrett, Eslinger, Ballentine & Heilman, 2005; Williamson, Alcantar, Rothlind, Cahn-Weiner, Miller & Rosin, 2010) (see Appendix 2.5).

Memory for offence

We used the method of McLeod, Byrne and Aitken (2004) where participants were asked to rate their level of recall in relation to their criminal history on a 10-point Likert scale. 0 indicated that the participant had no memory of the event at all and 10 indicated that they

had perfect memory. This simple subjective rating was used so that participants did not need to discuss specific information about their crimes, thus minimising potential distress and the likelihood of concealing information (see Appendix 2.5).

Indiana Psychiatric Illness Interview (Lysaker, 2002)

This is a semi-structured interview developed to assess narratives of illness. It looks into four main areas: the life story of the participant; how they understand their illness; how their illness "controls" their life and how they control it; and what they expect for the future. Time is also spent on establishing rapport and the interview is conversational in nature. The interviewer does not ask questions about specific symptoms but may ask for clarification and further information (see Appendix 2.6).

Metacognition Assessment Scale- Abbreviated (MAS-A) (Lysaker et al., 2005)

This has been adapted for specific use with the IPII from the original MAS (Semerari et al., 2003) which was created to assess for metacognitive changes in therapy transcripts. The transcript of the IPII provides the source material for rating metacognitive ability. It focuses on four areas reflecting each of the MAS subscales: the participant's "self reflectivity" (their understanding of their own mind), their "understanding of other's minds", "decentration" (the ability to consider the world from other perspectives) and "mastery" (the ability to implement strategies to control one's mental states). Each subcomponent has a separate hierarchical scale and a participant is awarded one point for each step on the scale that they achieve.

Service Engagement Scale (SES) (Tait et al., 2002)

The SES is a 14-item clinician-rated measure that assesses client engagement. Staff rate items using a four-point Likert scale from 'not at all or rarely' to 'most of the time', which results in a total score of between 0 and 42. Higher scores indicate lower engagement. There are four subscales: availability, collaboration, help-seeking, and treatment adherence. High internal consistency and retest reliability have been shown (Tait et al., 2002) (see Appendix 2.7).

Procedure

Following the collection of informed consent and demographic information participants first completed the immediate component of the Story Recall task. This was followed with the Test of Premorbid Functioning and the Digit Span. Participants were then asked to complete the two rating scales in which they predicted their AM ability, before completing the Autobiographical Memory Interview, followed by a further two rating scales where they considered their performance on the previous task. They also rated their memory for offence history at this point. At this stage participants were offered a break, or completed the delayed Story Recall task, ensuring that this was completed within 40 minutes (± 2) of the immediate task. The Indiana Psychiatric Illness Interview was then administered.

Data transformation

Standardisation of scores

As in Barrett et al (2005), in order to directly compare self-ratings of AM, memory for offences, and actual performance score, ratings were expressed as a percentage of the best possible score. That is, the points of the five-point scales were separated by 25% increments. For 10-point scale for offences the score was multiplied by 10, resulting in a number between 0 and 100.

Calculation of percentiles

No published data of percentiles or standard scores is available for the AMI and so percentiles were calculated using the means and standard deviations for the data collected. This was achieved by first calculating the z-score using the formula:

$$\text{z-score} = \frac{(\text{actual score} - \text{mean score})}{\text{standard deviation}}$$

Z-scores were then converted to percentiles using the Excel function NORMSDIST.

Calculation of awareness scores

A score for awareness of AM ability was calculated as the percentage difference between actual performance and self-rating standardised score. Utilising a similar method to Medin and McLeod (unpublished), this was calculated with the equation:

$$\text{Awareness score} = \frac{(\text{self rating} - \text{performance percentile rank})}{100}$$

Each of the four self-ratings were compared to the AMI personal semantic score, the AMI autobiographical incidents score, and the AMI total score. This resulted in twelve awareness scores for each participant. The scores ranged from -1 to 1, with a score of 0 reflecting 100% concordance between estimated and observed task performance. An overall awareness score was computed by averaging these twelve scores.

IPII coding

The IPII was coded using the Metacognition Assessment Scale- Abbreviated (MAS-A; Lysaker et al., 2005) as previously described. Primary MAS-A ratings were provided in the United States by the team of the MAS-A authors in order to ensure rigour. 50% of transcripts were double-rated to ensure reliability. The primary rater was blind to details and status of the participant.

Statistical Analyses

It was planned that histograms, box plots, and q-q plots would be used to determine the general distribution patterns in the data. Repeated measures ANOVAs, or the non-parametric equivalent Friedman's test, would be used to compare AMI scores according to each lifetime period for both personal semantic information and autobiographical incidents. Post hoc t-tests or Wilcoxon signed-rank tests would be used to further investigate any associations found.

Individual t-tests or Wilcoxon signed-rank tests would be used to identify discrepancies between predicted or perceived ability (on each of the four rating scales) and actual scores of the AMI (total, personal semantic information, and autobiographical incidents). A t-test would be used to compare MAS-A total scores of Self Reflectivity and Understanding of Other's Minds to published normative data from healthy participants (Rabin, Hasson-Ohayon, Avidan, Rozencwaig, Shalev, & Kravetz; 2014). As published data only includes means and standard deviations it would not be possible to conduct non-parametric comparisons. Individual Pearson's or Spearmen's correlation coefficients would be calculated to detect any associations between the AMI score and the Self-Reflectivity score on the MAS-A, the MAS-A total score, digit span score, story recall score, and TOPF

score. In order to investigate any difference between memory ability for offence related events, and memory ability for general events, AMI percentiles and percentiles of rating scores for memory of offence would be compared using a t-test or Wilcoxon signed-rank test. Utilising Pearson's or Spearman's correlation coefficient, associations would be investigated between the service engagement scale and: self awareness score; AMI total score; MAS-A Self Reflectivity; and MAS-A total score.

Post hoc analysis

In order to ascertain if the awareness scores calculated were measuring similar concepts to the MAS-A or MAS-A Self Reflectivity, Spearman's correlation coefficients would be calculated.

Ethics

Multi-site ethical approval was provided by NHS West of Scotland Research Ethics Committee (see Appendix 2.8). Approval was also gained from NHS Lanarkshire's and NHS Greater Glasgow and Clyde's respective Research and Development Departments (see Appendix 2.9).

Results

Demographic Information

142 people were considered to be eligible from initial screening. Of those people, 19 agreed to be approached, with 12 people being recruited into the study. Reasons given for choosing not to participate included transport issues and concerns over interviews being recorded. All participants were male with a diagnosis of schizophrenia. Four of the twelve participants were receiving community treatment, four were in a low secure hospital, and the remaining four were in a medium secure hospital. Further information regarding sample demographics and raw scores can be found in Table 1.

Table 1. Participants' performance on study measures

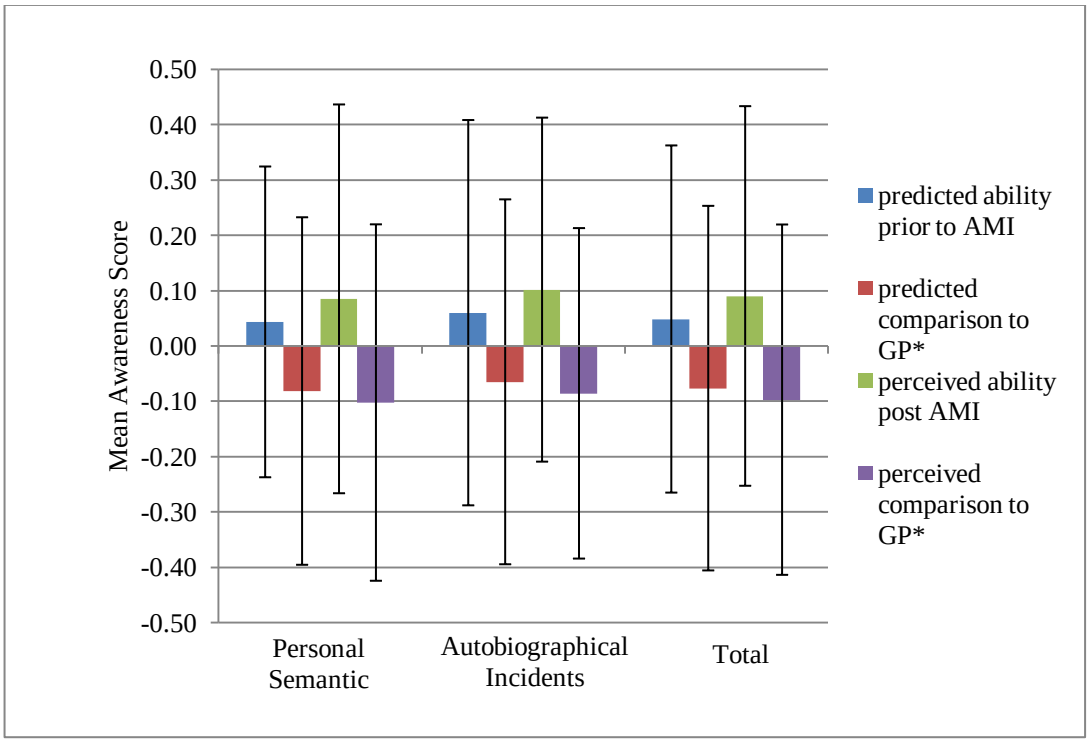
Measure	Mean (SD)	Median (IQR)
Age	33.75 (9.36)	33.5 (30-37.25)
ToPF – estimated FSIQ	94.83 (10.73)	95 (92.75-102.5)
Digit Span	10.83 (1.8)	11 (10-12)
Story Recall	31.25 (11.19)	30 (26-35.25)
AMI		
- Total	71.29 (10.03)	74.25 (68.63-77.13)
- Personal Semantic	54.54 (8)	56 (54.88-58.13)
- Autobiographical Incidents	16.75 (3.36)	17 (15.75-19.25)
MAS-A		
- Total	13.83 (4.55)	13.25 (10.5-15.75)
- Self-reflectivity	5.04 (1.62)	4.25 (4-6)
- Understanding Others	3.42 (0.87)	3 (3-3.63)
- Decentration	1.04 (0.45)	1 (0.5-1.5)
- Mastery	4.25 (2.11)	4.75 (2.75-5)
SES	7.83 (6.42)	8 (2.5-11.5)

When considering estimated full scale IQ eleven of the twelve participants were in the average range, with the remaining participant being in the borderline range. The mean AMI performance indicated that ability to remember personal semantic information was in the acceptable range, while the ability to remember autobiographical incidents was in the borderline range. For personal semantic information there was a significant main effect for lifetime period (childhood median = 17.25, IQR = 16-20.5; early adulthood median = 18.75, IQR = 16.25-20.63; recent median = 20, IQR = 18.63-21); $\chi^2(2) = 7.05$, $p<.05$. Post hoc analysis with Wilcoxin signed-rank tests revealed no significant difference between childhood and early adulthood, $Z = -.09$, $p = .929$, but a significant difference between both childhood and recent ($Z = -2.36$, $p<.05$), and early adulthood and recent ($Z = -2.14$, $p<.05$). When considering autobiographical incidents no significant effect was found for lifetime period (childhood median = 5, IQR = 4-6.75; early adulthood median = 6, IQR = 4-7; recent median = 6, IQR = 5.25-6.75); $\chi^2(2) = 2.18$, $p=.337$. Subjective recall of offence related memories (Median=80, IQR=60-100) was found to be significantly higher than ability to recall general life events (Median=62, IQR=40-72); $Z =-2.432$, $p<.05$. This is in the opposite direction to that hypothesised.

Participants in this study (Mean score=5.04, SD=1.62) were found to have significantly lower Self-Reflectivity scores than healthy controls (Mean score=6.76, SD=0.9); t(70)=5.2, p<.01. A significant difference was also found for Understanding of Other's Minds between participants (Mean score=3.42, SD=0.87) and the healthy control comparison sample (Mean score=5.72, SD=0.97); t(70)=7.62, p<.01. This is consistent with our hypothesis.

Figure 1 presents the averages, with standard deviations, for each of the twelve awareness scores. As described previously, these were calculated by comparing each of the four self-rating scales with actual scores for personal semantic information, autobiographical incidents and the total AMI.

Figure 1. Mean awareness scores, with standard deviations, for each rating scale in relation to AMI subscales and total scores



*General Population

No significant differences were found when comparing percentile ranks of scores from the subjective rating scales and those from actual performance on the AMI. Hence, this does not support our hypothesis. Table 2 illustrates these comparisons.

Table 2. Non-parametric comparisons of percentiles of predicted and perceived performance ratings and actual performance on the AMI

			Actual Performance		
			PS M=57 IQR=51-67	AI M=53 IQR=38-77	Total AMI M=62 IQR=40-72
Rating scales	Prior to AMI	Predicted Ability M=62.5, IQR=50-75	Z= -.549 (p = .583)	Z = -.471 (p = .638)	Z = -.667 (p = .505)
		Predicted Comparison with General Population M=50, IQR=50-50	Z = -.942 (p = .346)	Z = -.628 (p = .530)	Z = -.746 (p = .456)
	After AMI	Perceived Ability M=62.5, IQR=50-75	Z = -.863 (p = .388)	Z = -.979 (p = .328)	Z = -.706 (p = .480)
		Perceived Comparison with General Population M=50, IQR=25-50	Z = -.941 (p = .347)	Z = -1.020 (p = .308)	Z = -.801 (p = .423)

No significant associations were found between the AMI total score and Self-Reflectivity score, overall MAS-A score, digit span score, story recall score, and TOPF score. There is a signal in the data pointing to a possible relationship between AMI score and self-reflectivity as well as AMI score and overall MAS-A. Table 3 illustrates these findings.

Table 3. Correlations with autobiographical memory

Variable	AMI score
Self-Reflectivity score	r_s=.487 (p=.109)
Overall MAS-A score	r_s=.477 (p=.117)
Digit span score	r_s=-.021 (p=.947)
Story recall score	r_s=.148 (p=.645)
TOPF score	r_s=.088 (p=.786)

No significant associations were found between the SES scores of engagement and AMI score, awareness score, MAS-A total, or self reflectivity score. Table 4 provides further detail of these calculations.

Table 4. Correlations with service engagement

Variable	SES
AMI score	r_s=.182 (p=.570)
Awareness score	r_s=-.242 (p=.448)
MAS-A total	r_s=-.350 (p=.264)
Self Reflectivity	r_s=-.384 (p=.217)

Post hoc analysis

The total MAS-A showed a significant negative correlation with the average overall self-awareness (r_s =-.582, p<.05). Although not significant there was a trend that the self-reflectivity score was negatively correlated with self-awareness (r_s =-.494, p=.103)

Discussion

Main findings

The mean score for personal semantic information in this study narrowly fell into the "adequate" range on the AMI, while the mean autobiographical incidents score indicated a "borderline" deficit. This would suggest that people with schizophrenia in a forensic population may be able to recall specific facts appropriately when asked, but struggle to provide further detail or elaboration. These findings are at variance with previous data from Wood, Brewin and McLeod (2006), where both personal semantic information and autobiographical incidents scores indicated a deficit, however, the current findings would support other research which has suggested that personal episodic memory is relatively better preserved than autobiographical event memory in schizophrenia (Strauss & Gold, 2014). Wood et al. reported a U-shaped pattern in retrieval, where both childhood and recent events were recalled to a higher ability than early adulthood. Current findings support that recent events are recalled adequately, but both childhood events and early adulthood reflected a lower ability. This discrepancy may be explained by the fact that the current study utilised a forensic sample, while Wood et al. utilised a general psychiatric sample. Whilst we cannot be certain, it is possible that forensic samples have more traumatic histories, insecure-dismissing attachment styles, higher drug and alcohol use, and head injuries; all of which may contribute to disturbances in memory functioning.

Contrary to our hypothesis, subjective memory for personal offence history was rated as better than memory for other events in their lives. It is recognised that the comparison of a

self-report rating for quality of memory for offences and a formal score for AM may not be reliable. However, there were ethical concerns regarding asking participants to recall offence histories in greater detail. It was also considered that to ask for further detail would lead to less participation in the wider study and participants would be unlikely to respond truthfully and accurately to questions. It is entirely plausible that memory for offences is of a higher level as people will have been asked to recount details of their offences many times within criminal proceedings and in treatment. The level of recall for offending in this study was similar to that reported by McLeod, Byrne and Aitken (2004) which provides support for the accuracy of these findings. It was considered that participants may have over-predicted their ability to remember their offence histories, in a similar fashion to that shown by Medin and McLeod (unpublished). However, this is unlikely as they did not follow this pattern when predicting general AM.

Previous studies suggested that people with schizophrenia over-estimate their cognitive abilities (Medin & McLeod, unpublished) and this paper sought to discover if this pattern extended to AM ability. When considering the comparisons of predicted scores and actual AM ability alone, it would appear that the participants were able to accurately predict their AM ability, rather than over-estimate. However, this data would suggest that no clear pattern existed in the computed self-awareness scores, so no conclusions can be made from the current analysis that would support or compete with previous findings. In support of previous literature, participants of the current study displayed a lower level of metacognition when scores were compared to the general population. Furthermore, the signal in the current data suggesting a correlation between AM ability and self-reflectivity and metacognitive ability warrants further study. Based on the current results, such a study would require a sample size of 21 in order to test the hypothesis that AM ability and Self-Reflectivity are positively correlated. If a relationship is shown to exist this may suggest that people may use knowledge from their own experiences to allow them to be able to reflect on their own mind, and that of others. This interpretation is substantiated by research demonstrating a positive correlation between AM functioning and performance on theory of mind tasks in this population (Corcoran & Frith, 2003), and also by neuro-imaging studies displaying a cross-over in the brain systems involved in theory of mind and in AM (Rabin & Rosenbaum, 2012). Theory of mind tasks involve metacognition as they require the individual to have a representation of their own mind, and that of others.

When considering the wider issue of engagement in forensic mental health services, these findings may suggest that neither metacognitive ability, self-awareness, nor AM ability impact upon an individual's participation and motivation for treatment. This would seem an unlikely finding as it is reasonable to assume that if a person understands their difficulties and is aware of their own mind and that of others, they would be more likely to seek treatment and support.

Limitations

It is likely that many of the negative findings of this study can be explained by methodological issues. The failure to consent the sample size required for power to detect an effect means that the data may not reliably reflect the population and therefore may not have identified existing relationships. The use of self-report measures could be misleading as people in a forensic population may have a propensity to under-report symptoms, in order to appear more well and achieve a quicker discharge, or alternatively to appear more unwell and support a defence of diminished responsibility.

It is also possible that the method for measuring and calculating self-awareness did not provide an adequate estimation of the concept it was designed to reflect. Post hoc analysis attempted to address this query and it was found that the self-awareness score was negatively associated with metacognitive scores, instead of the positive relationship that may have been expected. As these concepts are by definition related, the method used may not have sufficient validity.

No formal test of effort was completed within the procedure and so it is possible that the answers given did not reflect the participant's true ability. This hypothesis may be supported by the initial findings on the AMI where participants were able to perform adequately when prompted, but scored more lowly when they were required to elaborate on facts, with minimal prompting. Future studies might consider the use of a test of effort but, as effort is likely to be a factor in clinical presentation, to rule out those who do not score adequately in effort could create a further obstacle in representing the true clinical population.

As the participants in this study were generally of an average IQ, it may be that the sample does not accurately reflect that of the wider psychosis population. It is expected that a person with a diagnosis of schizophrenia may perform at the level of one standard deviation below the mean on tests of intellectual functioning, and so would be in the low average range (O'Carroll, 2000). However, it is not unusual for people in forensic mental health services to be of average IQ, and so while it may not be possible to generalise current findings to a psychosis population, it may represent psychosis within forensic services.

As is the case in many studies of schizophrenia or forensic settings, recruitment in this study was biased to those who agreed to participate. It is therefore likely that those who agreed to participate may also be more engaged with their treatment plan, and potentially more mentally well, than those who did not participate. It was not possible to gather data regarding those who declined participation and so it is difficult to state whether results may be generalised to the wider population.

Future considerations

In order to substantiate some of the preliminary findings of this study regarding associations between AM and metacognitive ability, further research, involving a larger sample size is required. In order to address some of the issues discussed here. Future researchers may wish to consider issues such as bias in recruitment and level of effort from participants. A larger sample size may allow for further analysis in order to explore the nature of this relationship.

If indeed AM and metacognitive ability are associated, this may suggest that metacognitive skills could be enhanced by encouraging better recall of autobiographical memories within therapy. This may contribute to recovery in many ways, for example: it may improve the individual's level of insight into their symptoms of psychosis, allow them to challenge delusional belief systems, assist in problem solving, and reduce "sealing over".

Conclusions

Whilst we provide preliminary evidence of an association between AM ability and metacognitive ability, there are many methodological limitations which may challenge the

accuracy of this. Nonetheless, this has allowed us to pilot and evaluate the research methods used and to identify ways that research into this area could be progressed in the future.

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Chapter 3: Advanced Clinical Practice I Reflective Critical Account

Personal reflections on the development of psychological knowledge and theory

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Submitted in partial fulfilment of the requirement for the degree of Doctorate in Clinical Psychology (DClinPsy)

Abstract

Introduction: This account reflects on how my knowledge of psychological theories and models has changed and developed over the three years of clinical training. In order to help me to do this I have referred to Kolb's experiential learning cycle (1984) as I have considered the increasing demands of being a trainee.

Reflections: I have considered the competencies that trainees are expected to obtain in the different phases of training, and reflected on how I have worked towards gaining these, and used knowledge from previous years to assist in this process. In first year we are expected to develop our basic skills in direct clinical work. This then steps up a level in second year where we work more systemically and indirectly. For myself, this has culminated in my third year placement where I have been involved in training and supervision.

Conclusions: From reviewing my reflections, I became aware that I was also discussing my need be in the "expert" role, and the processes that have allowed me to move away from this. I was also focussing on my levels of anxiety and confidence in relation to this. I found it very helpful to have the opportunity to write these reflections, as it gave me the space to consider these issues and take this knowledge about myself and my practice into the next stage in my career.

Chapter 4: Advanced Clinical Practice II Reflective Critical Account

Personal reflections on the development of competencies in teaching and training others

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Submitted in partial fulfilment of the requirement for the degree of Doctorate in Clinical Psychology (DClinPsy)

Abstract

Introduction: The role of a clinical psychologist has developed to incorporate more managerial roles including conducting research and providing training and supervision. This account will focus on experiences in developing these competencies. It will utilise the reflective models of Schon (1983), Gibb (1988) and Boud, Keogh and Walker (1985).

Reflections: In relation to research and audit, reflections are made pertaining to the differing roles of researcher and therapist, and the challenges of switching between the two. I also consider the implications of this within MDT working. Challenges of providing training and supervision are also discussed, particularly in relation to managing this with very experienced members of staff. This cased a level of anxiety due to feeling that I wanted to be seen as competent and qualified to supervise.

Conclusions: The writing of this review led me to consider my ability to reflect within and outwith sessions, and recognise that my ability to reflect in the moment is especially impacted upon by my mood at the time. It is also interesting that anxiety about my level of confidence is an issue that was raised once again, in addition to being focussed on within my previous account. This led me to speculate that this may be a consistent experience in my career.

Appendices: Systematic Review

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Appendix 1.2 Data Extraction Sheet

DATA EXTRACTION

CITATION:

STUDY DESCRIPTORS:

Aim/objectives of the study:

Study design:

Study participants:

Study inclusion and exclusion criteria:

Recruitment procedures used:

N:

Treatment type:

RESEARCH QUESTION 1:

Definition of engagement/compliance:

Method of measuring engagement/compliance:

Validity of measurement:

Reliability of measurement:

Risk of bias:

RESEARCH QUESTION 2:

Factor	Was factor investigated?		Impact on engagement			Additional information
	Y	N	+ve	-ve	no	
Client characteristics						
Age						
Gender						
Ethnicity						
Socio-economic status						
diagnosis characteristics						
Co-morbidities						
Attitudes						
Level of insight						
Level of risk to self & others						
Other (specify)						
Treatment characteristics						
Setting						
Intensity						
Planned duration of						
Type of medication						
Satisfaction/ acceptability						
Side effects						
Supervision/ monitoring						
Other (specify)						

RESEARCH QUESTION 3:

Was engagement and its impact the primary outcome? Y/N

If yes: What was the wider impact/outcome?

ADDITIONAL INFO:

Appendix 1.3 CCAT subgrade scoring

Authors	Category (scored out of 5)								Total (/40)
	Preliminaries	**Introduction**	**Design**	**Sampling**	**Data Collection**	**Ethical Matters**	**Results**	**Discussion**	
Swartz et al. (2001)	5	4	4	4	4	1	4	4	30
Farabee et al.(2004)	5	5	2	3	2	2	3	4	26
Drieschner & Boomsma (2008)	5	5	5	3	4	2	5	4	33
Gray et al. (2008)	5	4	4	4	4	2	3	3	29
Shah et al. (2009)	5	5	3	3	3	1	4	4	28
Livingston et al. (2013)	5	3	4	3	4	3	4	5	31
Dickens et al. (2014)	5	5	5	4	4	2	4	5	34

Appendices: Major Research Project

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- Description of the Journal's reference style.
- Guide to using mathematical symbols and equations .
- Word templates are available for this journal. If you are not able to use the template via the links or if you have any other template queries, please contact authortemplate@tandf.co.uk.

3. Figures

- Please provide the highest quality figure format possible. Please be sure that all imported scanned material is scanned at the appropriate resolution: 1200 dpi for line art, 600 dpi for grayscale and 300 dpi for colour.
- Figures must be saved separate to text. Please do not embed figures in the manuscript file.
- Files should be saved as one of the following formats: TIFF (tagged image file format), PostScript or EPS (encapsulated PostScript), and should contain all the necessary font information and the source file of the application (e.g. CorelDraw/Mac, CorelDraw/PC).
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- Figure captions must be saved separately, as part of the file containing the complete text of the manuscript, and numbered correspondingly.
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Appendix 2.2 Information sheet

Self-awareness of autobiographical memory, metacognition and service engagement

PARTICIPANT INFORMATION SHEET

(Version 1, 23rd April 2014)

Chief Investigator:
Ms. Lynsey Cameron
Trainee Clinical Psychologist
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1st Floor Admin Building
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Tel: 0141 211 3922

Academic Supervisor:
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Programme Director/Senior Lecturer
Doctorate in Clinical Psychology
Mental Health and Wellbeing
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Field Supervisor (NHS Lanarkshire)
Dr Fiona Mair
Lead Clinical Psychologist
Forensic Mental Health Service
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Tel: 01698 489712

Field Supervisor (NHS GG&C)
Dr Heather Laithwaite
Consultant Forensic Clinical Psychologist
Rowanbank Clinic
133c Balornock Road
Glasgow
G21 3UL
Tel: 0141 232 6400

Invitation to Participate in a Research Project

We would like to invite you to take part in a research study. Before you decide, you need to understand why the research is being done and what it would involve for you. Please take time to read the following information carefully. Talk to others about the study if you wish.

Ask us if there is anything that is not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the research about?

This study is designed to investigate how people remember events that have happened to them in their lives. In particular, we are looking at this with people who have been diagnosed with psychosis and are involved in forensic mental health services. This kind of research will contribute to understanding of the needs of people with psychosis, and to developing new ways that aim to help people recover. The study is being undertaken as part of the fulfilment for an academic qualification (Doctorate in Clinical Psychology).

Who is being asked to take part?

We are asking people who are involved in forensic mental health services, who also have a diagnosis of schizophrenia and other similar disorders, to take part in the study.

Why have I been asked to take part?

A member of the forensic mental health team responsible for your care (e.g. Psychiatrist, Clinical Psychologist or Community Psychiatric Nurse (CPN)) has suggested that you might be interested in taking part in this study.

What do you mean by the term "autobiographical memory"?

"Autobiographical memory" refers to a person's memory of events that have happened in their own lives. These can be memories of specific events or of more general periods in a person's life, such as childhood and growing up.

What are you asking me to consent to?

If you consent to participate, you will meet with a researcher in a suitable venue to complete an interview and some memory tasks. The researcher will also look at your case

notes to obtain information about your age, occupation/education, diagnosis, duration of illness and medications. Also, a staff member who is involved in your care will provide information relating to your engagement with the Forensic service.

What will I be asked to do if I agree to take part?

Initially, you will be contacted by a researcher who will provide you with the chance to ask questions about the study and discuss taking part. If you choose to participate, a suitable time will be arranged for you and the researcher to meet. You will meet with a researcher for one session, lasting approximately 1 ½ hours. You will be able to take breaks during this session if you would like to.

First of all, you and the researcher will discuss your memory. This will involve you making judgements about how good your general memory and your autobiographical memory are, and how you think this compares to the rest of the population. You will also be asked to make a single rating about how clear your memory is for crime-related events in your past. You *will not* be asked any details about any previous offences.

Following this, you will take part in an interview about your autobiographical memory. This will involve you recalling events from your childhood, early adulthood, and recent events. This interview will be audio-recorded and later transcribed so that it can be analysed by the researcher.

The final part of the session involves another interview focusing on your life story, how you understand your illness, how you manage your illness, how the illness impacts on you, and what you expect for the future. This interview will also be audio-recorded.

The interviews may prompt you to remember positive experiences as well as upsetting experiences but we will not deliberately ask you any embarrassing or upsetting questions. You do not have to discuss any of the experiences that come to mind if you do not want to.

Will my information be confidential?

All the information that you provide will be treated as confidential. This means that all the information will only be identified by a code and **not by your name**. We will keep all the information safe and anonymous. This means that it will not include your name, the names

of other people, schools, or jobs that you may mention, or any other information which could identify you. Only the researcher who interviews you will hear the original recording. Once the interview is written down, the recording will be destroyed.

With your permission, we will inform the member of the mental health team who referred you that you are taking part in the study.

If you share information that makes the researcher concerned for your safety or the safety of other people, they may be required to pass this information on to others involved in your care (e.g. your key-worked or psychiatrist). We will always attempt to discuss this with you beforehand and explain why they are concerned.

What happens to the consent form?

To ensure that you information is kept confidential and anonymous, the consent form will be kept separately from the transcribed interview and research forms, in a locked filing cabinet. This will be within the University of Glasgow premises in the department of Mental Health and Wellbeing.

What are the benefits of taking part?

In general, research improves our knowledge of what people's difficulties are and what we can do to help people overcome these and improve people's lives. Your participation will help increase our knowledge of areas and potentially improve treatment for others in the future.

Is there a downside to taking part?

It is possible, but unlikely that the interview may prompt you to recall events that you might find upsetting. However, you will not be forced to discuss anything you do not want to and we do not expect you to become distressed by your participation in the study. Many previous studies have been done in this area and it is very rare for people to experience negative outcomes, having participated in these studies. If you do feel distressed, or have any concerns, you can contact the researcher or your mental health team in order to access suitable support.

Participation will also use around 1 ½ hours of your time, however the study has been designed to use the least amount of time possible.

What happens if I decide not to take part?

Nothing will happen if you choose not to participate. It will not affect any treatment that you receive.

Can I change my mind?

If you decide to take part, you are able to change your mind and withdraw from the study at any time, and you do not need to give a reason. This will not affect any aspect of your usual care.

What will happen to the results of the study?

It is hoped that the overall results will be published in a medical journal and through other routes to raise awareness of the findings. You will not be identified in any report or publication. You are welcome to receive a copy of the findings once the project is complete. Please tell the researcher if you would like this and provide an address to which a summary of the results can be sent to.

Who is organising and funding the research?

The University of Glasgow, with support from NHS Lanarkshire and NHS Greater Glasgow and Clyde.

Who has reviewed the study?

The study has been reviewed by the University of Glasgow and the West of Scotland Research Ethics Committee to ensure that it meets required standards.

Can I speak to someone who is independent of the study?

Yes. You can speak to Professor Thomas McMillan at the University of Glasgow (Tel: +44 (0)141 211 0354 or thomas.mcmillan@glasgow.ac.uk).

What if there is a problem?

If you have a concern with any aspect of the study, please speak to the researcher who will do their best to assist you. To contact the research team please call 0141 211 3922.

If you remain unhappy and wish to complain formally, you can do this through NHS Lanarkshire Patient Services by telephoning 01698 858 321, or through NHS Greater Glasgow and Clyde NHS Complaints by telephoning 0141 201 4500.

If you feel distressed following your participation in this study, you can call your key worker: .....

Alternatively you can contact the numbers or websites below.

- **Breathing Space 0800 83 85 87**

Breathing Space is a free, confidential phone and web based service for people in Scotland experiencing low mood, depression or anxiety.
Open: Weekdays: Mon-Thu 6pm-2pm. Weekends: Fri 6pm- Mon 6am.
www.breathingspacescotland.co.uk

- **Samaritans 08457 90 90 90**

Samaritans is a free confidential helpline for people who are feeling distressed, suicidal or need emotional support.
Open: 24hours, 7 days a week.
www.samaritans.org

- **NHS 24 111**

NHS 24 is an online and telephone-based service. They can answer your questions about your health and offer advice. You contact NHS24 during evenings and weekends, if you think you need to access medical support before your GP reopens.
Open: 24 hours, 7 days a week.
www.nhs24.com

Thank you for taking the time to read this

Appendix 2.3 Consent form

Self-awareness of autobiographical memory, metacognition and service engagement

CONSENT FORM

(Version 1, 29th April 2014)

Chief Investigator: Dr. Hamish McLeod**,** Programme Director for Doctorate in Clinical Psychology and Senior Lecturer

Researcher: Lynsey Cameron, Trainee Clinical Psychologist

Local Lead Investigators: Dr Fiona Mair, Clinical Psychologist (NHS Lanarkshire); Dr Heather Laithwaite, Clinical Psychologist (NHS Greater Glasgow & Clyde)

1. I have read and understand the Participant Information Sheet dated..... (Version.....) for the above study.	☐
2. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.	☐
3. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.	☐
4. I understand that the interview will be recorded and transcribed, and that following transcription the original recording will be destroyed and all personal information will be removed from the transcription.	☐
5. I understand that a member of the research team will examine my case notes to obtain data about my occupation/education, diagnosis, duration of illness and medications.	☐

6. I understand that staff members involved in my care will be asked to give information about my engagement in the service. ☐

7. I understand that if I say anything that makes the researcher concerned about my safety or the safety of another person, this information may be passed onto a third party. I also understand that the researcher will attempt to discuss this with me, should this situation arise. ☐

8. I understand that remarks I make may be included in an anonymous form in reports about this research (please leave this blank if you do not consent to this) ☐

9. I agree to my GP being informed of my participation in the study. ☐

10. I agree to take part in the above study. ☐

Name of Participant	Date	Signature

Name of Person taking consent	Date	Signature

Participant's Identification Number for this study: ☐

Appendix 2.4 Demographic information

An exploration of self-awareness of autobiographical memory deficits and its impact upon engagement in psychological services, in service users of forensic mental health services with psychosis

DEMOGRAPHIC INFO
(Version 1, 28th July 2014)

Please complete this brief questionnaire which asks some information about yourself. Your personal information will be kept completely confidential and your identity will only be known to the researcher. The data obtained will be anonymised and stored securely. You do not have to answer a question if you do not want to.

These questions are asked to find out more information about yourself (e.g. your gender) which is important so that the characteristics of people that involved in the study are known. Also some of the questions are asked to make sure that you are eligible for the study as some things such as having dementia or drinking excessively would impact on the results of the study therefore you could not take part.

What is your gender?	
What is your date of birth?	
Is English your first language?	Yes/No
Have you ever had a head injury that involved loss of consciousness and/or hospitalisation?	Yes/No
Have you ever suffered a stroke?	Yes/No
Have you ever been diagnosed with a cognitive problem?	Yes/No
Have you ever been diagnosed with a drug or alcohol misuse disorder?	Yes/No
When did you last consume alcohol?	
When did you last consume illicit substances?	

Do you have any physical health problems? If so, can you please state them?	
Are you currently taking any medications? If so, can you please state them?	

Participant's Identification Number for this study:

Appendix 2.5 Autobiographical memory measures

Participant ID:.....

An exploration of self-awareness of autobiographical memory deficits and its impact upon engagement in psychological services, in service users of forensic mental health services with psychosis

Autobiographical Memory Measures

Rating Scale 1

Having read the information sheet and understood the concept of autobiographical memory, how well would you rate your ability to retrieve information from your autobiographical memory?

No ability _____ Some ability _____ Neither good nor bad _____ Good _____ Perfect

How do you think this ability will compare to that of the general population?

Very Low _____ Below Average _____ Average _____ Above Average _____ Very High

Autobiographical Memory Interview (to be recorded)

Autobiographical incidents schedule.

Time period	Incident to be recalled	Suggested prompts
CHILDHOOD	Before school	- first memory? - involving brother or sister?
	At primary school (i.e. 5-1 1 years)	- involving friend? - involving teacher?
	At secondary school (i.e. 11-16/18 years)	- involving friend? - involving teacher?

EARLY ADULT LIFE	First job or at College/ University	- first day at job/college? - episode with friend/ girlfriend?
	Wedding: own or other's during 20s	- the guests? - at reception?
	Meeting someone during 20s	- e.g. an interview? - on holiday or at work?
RECENT EVENTS	A relative or visitor in the last year	- visit by/to a relative? - news about a relative?
	An event in this hospital/ institution/place where interviewed	- involving other patients/clients? - involving staff/doctors/ nurses?
	A journey in the last year	- place visited? - someone met?

Personal Semantic Memory Schedule

Time-period	Item	Examples of individual questions
BACKGROUND INFORMATION	Parents/guardians	names, date of birth, where born, occupation, address or when and where born?
	Brothers/sisters	as above
	Self	date of birth, where born?
CHILDHOOD	Before school	address where living, names of friends?
	First school (kindergarten or primary)	name, where, age at starting, own address, names of teachers/friends?
	Secondary school (at age 13)	name, where, level of exams passed, own address, names of teachers/friends?
EARLY ADULT LIFE	First job or College/ University	name of firm/college, qualifications, own address, names of boss/colleagues?
	Wedding: own or other's during 20s	whose? where? when? address before/after, names of best man/bridesmaids?
	Children (own or niece/nephew or close friend's)	names of two children, when and where born?
RECENT INFORMATION	Hospital or other institution	current - name and place, when first came, names of staff/clients/patients, current address? When and where last in hospital, where living then?
	Christmas and visits	where last Christmas spent? who with? names of other visitors/relatives seen in last

		year?
	Holidays or other journeys in last year (or within last five years, if more applicable)	where? when? who with?

Rating Scale 2

How well would you rate your ability on the previous task?

No ability _____ Some ability _____ Neither good nor bad _____ Good _____ Perfect

How do you think this ability will compare to that of the general population?

Very Low _____ Below Average _____ Average _____ Above Average _____ Very High

Memory for offense

How would you rate your memory of your offense/offenses?

No memory at all — Perfect memory

0 - 1 - 2 - 3 - 4 - 5 - 6 - 7 - 8 - 9 - 10

Appendix 2.6 Indiana Psychiatric Illness Interview (IPII)

IPII (remember story recall 2 first)

Section I: General free narrative

"Tell me the story of your life, in as much detail as you can, from as early as you can remember up to now"

Can ask to elaborate, but not to fill in gaps

Section II: Illness narrative

"Do you think that you have a MI – if so, what is it?"

"What have your experiences of MI been in the past?"

"What have caused these?"

"How do you feel about having this MI?"

"What do you think is going to happen in terms of your MI in the future?"

"How are other people affected by your MI?"

Section III: Wrong vs. not wrong

"Has anything changed, or not changed, regarding:

Work

Relationships

Lives of others

Thoughts/feelings

Personality

Section IV: Influence of illness

“To what extent and in what way does your MI control your life?”

“To what extent and in what way are you able to control your MI?”

“How have others been affected?”

Section V: The future

“What do you see ahead of yourself in the future?”

“Anything else?”

Appendix 2.7 Service Engagement Scale (SES)

Service Engagement Scale

		Rating			
		not at all/rarely	Some-times	Often	Most of the time
Availability					
1	The client seems to make it difficult to arrange appointments	0	1	2	3
2	When a visit is arranged, the client is available	3	2	1	0
3	The client seems to avoid making appointments	0	1	2	3
Collaboration					
4	If you offer advice, does the client usually resist it?	0	1	2	3
5	The client takes an active part in the setting of goals or treatment plans	3	2	1	0
6	The client actively participates in managing his/her illness	3	2	1	0
Help seeking					
7	The client seeks help when assistance is needed	3	2	1	0
8	The client finds it difficult to ask for help	0	1	2	3
9	The client seeks help to prevent a crisis	3	2	1	0
10	The client does not actively seek help	0	1	2	3
Treatment adherence					
11	The client agrees to take prescribed medication	3	2	1	0
12	The client is clear about what medications he/she is taking and why	3	2	1	0
13	The client refuses to co-operate with treatment	0	1	2	3
14	The client has difficulty in adhering to the prescribed medication	0	1	2	3

Appendix 2.8 Ethical Approval

WoSRES
West of Scotland Research Ethics Service

NHS
Greater Glasgow and Clyde

West of Scotland REC 5
Ground Floor – The Tennent Institute
Western Infirmary
38 Church Street
Glasgow G11 6NT
www.nhsggc.org.uk

Miss Lynsey Cameron
Trainee Clinical Psychologist
University of Glasgow
1st Floor Admin Building
Gartnavel Royal Hospital
1055 Great Western Road
G12 0XN

Date 21st October 2014
Your Ref
Our Ref
Direct line 0141 211 2102
Fax 0141 211 1847
E-mail WOSREC5@ggc.scot.nhs.uk

Dear Miss Cameron

Study title:	**An exploration of self-awareness of autobiographical memory functioning in forensic mental health service users with psychosis.**
REC reference:	**14/WS/1122**
IRAS project ID:	**158200**

The Research Ethics Committee reviewed the above application at the meeting held on 15 October 2014. Thank you for attending to discuss the application.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the REC Manager Mrs Liz Jamieson, WoSREC5@ggc.scot.nhs.uk.

Ethical opinion

The members of the Committee present gave a favourable ethical opinion of the above research on the basis described in the application form, protocol and supporting documentation, subject to the conditions specified below. .

Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

The GP letter should be renamed as the 'Referrer Letter' and resubmitted to the REC for acknowledgement.

You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which can be made available to host

organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at http://www.rdforum.nhs.uk.

Where a NHS organisation's role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see "Conditions of the favourable opinion" below).

Summary of discussion at the meeting

Recruitment arrangements and access to health information, and fair participant selection

The Committee agreed that it was unclear how many participants would be recruited to the study. A6-1 stated 40 whereas A59 stated 30.

You clarified that the basic need for the statistics was 13 participants from a sample of 30 or 40 but more would be better.

The Committee commented that participants would be able to say what they feel like and in fact what they say could be untrue.

You advised that you had taken this into consideration and it was not what the participants said that was important, it was the way they said it. If you did have any concerns you would discuss with the care team.

Favourable risk benefit ratio; anticipated benefit/risks for research participants (present and future)

The Committee noted that the Peer Review commented that the interview would last 90 minutes and that this could be burdensome for the participants.

You advised that there would be flexibility around this and that this could be broken down if needed. You would discuss with the person's care team to ensure the participant was capable of this. If not then they would not be recruited to the study.

The Committee asked what action would be taken should someone say something during the interviews that gave cause for concern.

You advised that the Care Team would be available at any point and that you would pass the information to them if you had concerns.

Informed consent process and the adequacy and completeness of participant information

The Committee noted that the Participants' capacity will have been assessed prior to being recruited. However the Participant Information Sheet was lengthy and the Committee wondered whether the participant would actually read this through.

You advised that you would go through the Participant Information Sheet with each participant to ensure that they were clear what was involved if they decided to take part.

Suitability of supporting information

There were two letters included which implied the recipient was the person who informed the participant of the research so this was not strictly a GP letter.

You advised that you would inform the GP that their patient was taking part in the study. You also acknowledged that the letter should state 'Referrer' and not GP.

Approved documents

The documents reviewed and approved at the meeting were:

Document	*Version*	*Date*	
GP/consultant information sheets or letters [letter to referrer]	1	01 September 2014	
IRAS Checklist XML [Checklist_02102014]		02 October 2014	
Letter from funder [proceed to ethics]	1	11 August 2014	
Letter from statistician [university feedback]	1	02 October 2014	
Non-validated questionnaire	1	28 July 2014	
Participant consent form [Consent form]	1	02 April 2014	
Participant information sheet (PIS) [PIS]	1	23 April 2014	
REC Application Form [REC_Form_02102014]		02 October 2014	
Referee's report or other scientific critique report [Field supervisor feedback]	1	12 August 2014	
Research protocol or project proposal [Protocol/Proposal]	2.1	23 June 2014	
Summary CV for Chief Investigator (CI) [Lynsey Cameron CV]		04 August 2014	
Summary CV for supervisor (student research) [Academic Supervisor CV]		12 August 2014	
Summary, synopsis or diagram (flowchart) of protocol in non technical language [flowchart]	1	04 August 2014	
Validated questionnaire [Digit Span]			
Validated questionnaire [Autobiographical Memory measures]			

Membership of the Committee

The members of the Ethics Committee who were present at the meeting are listed on the attached sheet.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Training

We are pleased to welcome researchers and R&D staff at our training days – see details at http://www.hra.nhs.uk/hra-training/

14/WS/1122	**Please quote this number on all correspondence**

With the Committee's best wishes for the success of this project.

Yours sincerely

[redacted]

Liz Jamieson
REC Manager
On behalf of Dr Gregory Ofili, Chair

Enclosures: List of names and professions of members who were present at the meeting and those who submitted written comments

"After ethical review – guidance for researchers"

Copy to: Mr Raymond Hamill, NHS Lanarkshire

West of Scotland 5

Attendance at Committee meeting on 15 October 2014

Committee Members:

Name	*Profession*	*Present*	*Notes*	
Professor Pauline Banks	Reader (Older Persons' Health)	Yes		
Dr Stewart Campbell	Consultant Physician & Gastroenterologist	No		
Dr Roddy Chapman	Consultant Anaesthetist	No		
Dr James Curran	GP	No		
Dr Darryl Gunson	Lecturer	No		
Dr Gillian Harold	Consultant Radiologist	Yes		
Dr Ahmed Khan	Consultant Psychiatrist	Yes		
Mrs Sharon Macgregor	Co-ordinator	No		
Professor Eddie McKenzie	Statistician	Yes		
Canon Matt McManus	Parish Priest	Yes		
Ms Janis Munro	Key Account Manager	Yes		
Dr Gregory Ofili	Consultant Gynaecologist (CHAIR)	Yes		
Mrs June Russell	Retired (Research Chemist)	Yes		
Mr Charles Sargent	Retired	No		
Dr Marcel Strauss	Consultant Radiologist	Yes		
Mrs Liz Tregonning	Retired (Special Needs Teacher)	Yes		

Also in attendance:

Name	*Position (or reason for attending)*	
Dr Judith Godden	Scientific Officer/Manager	
Mrs Liz Jamieson	Committee Co-ordinator	

WoSRES
West of Scotland Research Ethics Service

NHS
Greater Glasgow and Clyde

West of Scotland REC 5
Ground Floor - Tennent Building
Western Infirmary
38 Church Street
Glasgow
G11 6NT

Miss Lynsey Cameron
Trainee Clinical Psychologist
University of Glasgow
1st Floor Admin Building
Gartnavel Royal Hospital
1055 Great Western Road
G12 0XN

Date 18 November 2014
Re-issued 28 November 2014

Direct line 0141 211 2102
E-mail WoSREC5@ggc.scot.nhs.uk

Dear Miss Cameron

Study title: **An exploration of self-awareness of autobiographical memory functioning in forensic mental health service users with psychosis.**
REC reference: **14/WS/1122**
IRAS project ID: **158200**

Thank you for your email of 10 November 2014. I can confirm the REC has received the documents listed below and that these comply with the approval conditions detailed in our letter dated 21 October 2014.

Documents received

The documents received were as follows:

Document	*Version*	*Date*	
Other [Referrer Letter]	2	05 November 2014	

Approved documents

The final list of approved documentation for the study is therefore as follows:

Document	*Version*	*Date*	
IRAS Checklist XML [Checklist_02102014]		02 October 2014	
Letter from funder [proceed to ethics]	1	11 August 2014	
Letter from statistician [university feedback]	1	02 October 2014	
Non-validated questionnaire	1	28 July 2014	
Other [Referrer Letter]	2	05 November 2014	

Participant consent form [Consent form]	1	29 April 2014	
Participant information sheet (PIS) [PIS]	1	23 April 2014	
REC Application Form [REC_Form_02102014]		02 October 2014	
Referee's report or other scientific critique report [Field supervisor feedback]	1	12 August 2014	
Research protocol or project proposal [Protocol/Proposal]	2.1	23 June 2014	
Summary CV for Chief Investigator (CI) [Lynsey Cameron CV]		04 August 2014	
Summary CV for supervisor (student research) [Academic Supervisor CV]		12 August 2014	
Summary, synopsis or diagram (flowchart) of protocol in non technical language [flowchart]	1	04 August 2014	
Validated questionnaire [Digit Span]			
Validated questionnaire [Autobiographical Memory measures]			

You should ensure that the sponsor has a copy of the final documentation for the study. It is the sponsor's responsibility to ensure that the documentation is made available to R&D offices at all participating sites.

14/WS/1122 **Please quote this number on all correspondence**

Yours sincerely

[redacted]

Mrs Sharon Macgregor
REC Manager

Copy to: Mr Raymond Hamill, NHS Lanarkshire

Appendix 2.9 R&D approval

Miss Lynsey Cameron
University of Glasgow
1st Floor Admin Building
Gartnavel Hospital
1055 Great Western Road
Glasgow
G12 OXN

R&D Department
Corporate Services Building
Monklands Hospital
Monkscourt Avenue
AIRDRIE
ML6 0JS

Date 27 November 2014
Enquiries to Elizabeth McGonigal,
R&D Facilitator
Direct Line 01236 712445
Email elizabeth.mcgonigal@lanarkshire.scot.nhs.uk

Dear Miss Cameron

Project title: An exploration of self-awareness of autobiographical memory deficits and its impact upon engagement In psychological services, in service users of forensic mental health services with psychosis

Project ID Number: NRS14/MH143

R&D ID: L14056_GE75

I am writing to you as Chief Investigator of the above study to advise that R&D Management approval has been granted for the conduct of your study within NHS Lanarkshire as detailed below:

NAME	TITLE	ROLE	NHSL SITE TO WHICH APPROVAL APPLIES
Lynsey Cameron		Principal Investigator	NHS Lanarkshire

As you are aware, NHS Lanarkshire has agreed to be the Sponsor for your study. On its behalf, the R&D Department has a number of responsibilities; these include ensuring that you understand your own role as Chief Investigator of this study. To help with this we have outlined the responsibilities of the Chief Investigator in the attached document for you information.

All research projects within NHS Lanarkshire will be subject to annual audit via a questionnaire that we will ask you to complete. In addition, we are required to carry out formal monitoring of a proportion of projects, in particular those projects that are Sponsored by NHS Lanarkshire. In either case, you will find it helpful to maintain a well organised Site File. You may find it helpful to use the folder that we have included for that purpose.

/....

For the study to be carried out you are subject to the following conditions:

Conditions

- You are required to comply with Good Clinical Practice, Ethics Guidelines, Health & Safety Act 1999 and the Data Protection Act 1998.
- The research is carried out in accordance with the Scottish Executive's Research Governance Framework for Health and Community Care (copy available via the Chief Scientist Office website: http://www.show.scot.nhs.uk/cso/ or the Research & Development Intranet site: http://firstport/sites/randd/default.aspx.
- You must ensure that all confidential information is maintained in secure storage. You are further obligated under this agreement to report to the NHS Lanarkshire Data Protection Office and the Research & Development Office infringements, either by accident or otherwise, which constitutes a breach of confidentiality.
- Clinical trial agreements (if applicable), or any other agreements in relation to the study, have been signed off by all relevant signatories.
- You must contact the R&D Department if/when the project is subject to any minor or substantial amendments so that these can be appropriately assessed, and approved, where necessary.
- You notify the R&D Department if any additional researchers become involved in the project within NHS Lanarkshire
- You notify the R&D Department when you have completed your research, or if you decide to terminate it prematurely.
- You must send brief annual reports followed by a final report and summary to the R&D office in hard copy and electronic formats as well as any publications.
- If the research involves any investigators who are not employed by NHS Lanarkshire, but who will be dealing with NHS Lanarkshire patients, there may be a requirement for an SCRO check and occupational health assessment. If this is the case then please contact the R&D Department to make arrangements for this to be undertaken and an honorary contract issued.

I trust these conditions are acceptable to you.

Yours sincerely,

[redacted]

Raymond Hamill – Corporate R&D Manager

Cc

NAME	TITLE	CONTACT ADDRESS	ROLE
Lynsey Cameron		l.cameron.2@research.gla.ac.uk	Principal Investigator
Raymond Hamill	R&D Manager	raymond.hamill@lanarkshire.scot.nhs.uk	Sponsor Contact
Dr Fiona Mair	Lead Clinical Psychologist	fiona.mair@lanarkshire.scot.nhs.uk	Named Contact
Dr Gary Tanner	Head of Psychological Services	gary.tanner@lanarkshire.scot.nhs.uk	Names Contact

Enc 1 x Site File
1 x Responsibilities as Sponsor Notes

Responsibilities as Sponsor

Site File

As an aid to the conduct of your study we have provided a Site File that you may wish to use. As Sponsor of the study we are required to carry out audit of all project, and to conduct detailed monitoring visits for a proportion (approximately 10%) - The study Site File should help you ensure that you have the relevant documentation to assist in this process. If your project is selected for monitoring, we will contact you well in advance to arrange a suitable time.

Our responsibilities as Sponsor are defined within the Research Governance Framework for Health and Community Care. A summary of these, along with those of the Chief Investigator, is provided in the following table for your information.

RESPONSIBILITIES OF CHIEF INVESTIGATOR	NHSL RESPONSIBILITIES AS SPONSOR
Obtain relevant / appropriate Research Ethics opinion. Obtain NHSL Research Management Approval. Ensure that the members of the research team have the necessary expertise, experience and education to perform their roles. Ensure the necessary resources are available for the study. Act in accordance with regulations set out by your professional body(s) and the conditions of your employment contract. Identify archiving arrangements at the study outset. Record and review significant developments that may affect the study, particularly those which put the safety of the individuals at risk or affect the scientific direction and report to the sponsor as appropriate. Record, report and review all untoward medical occurrence (adverse events or reactions) including classification of causality, seriousness and expectedness.	Assess adequateness of the independent, expert review. Ensure that the Chief/Principle Investigator has the necessary expertise, experience and education to conduct the study. Provide a formal written agreement of sponsorship conditions, and notification of confirmation of the sponsorship role. Provide NHS indemnity to the Chief Investigator and research team. Provide mechanisms and processes to exploit any potential Intellectual Property. Project monitoring commensurate with risk. Make available local, national and international guidelines, regulations and legislation governing research in the UK.

RESPONSIBILITIES OF CHIEF INVESTIGATOR	NHSL RESPONSIBILITIES AS SPONSOR
Notify R&D and appropriate REC of significant news, changes, amendments and modifications to the study. Maintain a record of all incidents, providing an annual report to the sponsor. Inform REC and R&D of the study end. Maintain a log of archived documents and their location. Inform R&D of any publications arising from the study or dissemination of findings. Inform R&D of any potential Intellectual Property.	Provide ongoing advice and guidance to promote quality study management and conduct. Determine the acceptability of the archive arrangements proposed by the Chief Investigator and, if the archive facility becomes unsuitable, provide alternative arrangements. Determine length of archive/retention period for essential study documents and subsequent destruction date

Miss Lynsey Cameron
University of Glasgow
1st Floor Admin Building
Gartnavel Hospital
1055 Great Western Road
Glasgow
G12 0XN

R&D Department
Corporate Services Building
Monklands Hospital
Monkscourt Avenue
AIRDRIE
ML6 0JS

Date 27 April 2015
Enquiries to Frances Fisher,
R&D Facilitator
Direct Line 01236 712460
Email Frances.Fisher@lanarkshire.scot.nhs.uk

Dear Miss Cameron,

Project title: An exploration of self-awareness of autobiographical memory functioning in forensic mental health service users with psychosis

R&D ID: L14056_GE75 **Ethics number: 14/WS/1122**

Amendment number: NSA01

Local PI: Dr Fiona Mair **NHSL Site(s): NHS Lanarkshire**

I am writing to you as Chief Investigator of the above study in reference to the above Amendment. Any documents approved are listed in Table 1, overleaf.

I confirm that your original R&D Management Approval has not been affected by this Amendment, and it can therefore be implemented within NHS Lanarkshire as detailed above, subject to **all** regulatory approvals. NHS Lanarkshire reserves the right to revoke Management Approval should any unfavourable opinions be received.

I note that it is the responsibility of the Principal Investigator(s) to carry out any changes to be made to the project as a result.

Yours sincerely,

[redacted]

Raymond Hamill – Corporate R&D Manager
cc. – see overleaf

Table 1. Documents approved by the NHS REC as part of this amendment

☑ No additional documents were approved as part of the amendment

C.C.

NAME	TITLE	CONTACT ADDRESS	ROLE
Dr Fiona Mair	Lead Clinical Psychologist	Fiona.mair@lanarkshire.scot.nhs.uk	Local Collaborator
Raymond Hamill	R & D Manager	Raymond.hamill@lanarkshire.scot.nhs.uk	Sponsor Contact

Administrator: Mrs Elaine O'Neill
Telephone Number: 0141 211 1743
E-Mail: elaine.o'neill2@ggc.scot.nhs.uk
Website: www.nhsggc.org.uk/r&d

R&D Management Office
Western Infirmary
Tennent Institute
1st Floor 38 Church Street
Glasgow, G11 6NT,

26 November 2014

Dr Heather Laithwaite
Consultant Forensic Clinical Psychologist
Rowanbank Clinic
133c Balornock Road
Glasgow G21 3UL

NHS GG&C Board Approval

Dear Dr Laithwaite,

Study Title:	**An exploration of self-awareness of autobiographical memory functioning in forensic mental health service users with psychosis**
Principal Investigator:	**Dr Heather Laithwaite**
GG&C HB site	**Rowanbank Clinic & Douglas Inch Clinic**
Sponsor	**NHS Lanarkshire**
R&D reference:	**GN14CP534**
REC reference:	**14/WS/1122**
Protocol no:	**V2.1; 23/06/2014**

I am pleased to confirm that Greater Glasgow & Clyde Health Board is now able to grant **Approval** for the above study.

Conditions of Approval

1. **For Clinical Trials** as defined by the Medicines for Human Use Clinical Trial Regulations, 2004

    a. During the life span of the study GGHB requires the following information relating to this site
        i. Notification of any potential serious breaches.
        ii. Notification of any regulatory inspections.

It is your responsibility to ensure that all staff involved in the study at this site have the appropriate GCP training according to the GGHB GCP policy (www.nhsggc.org.uk/content/default.asp?page=s1411), evidence of such training to be filed in the site file.

2. **For all studies** the following information is required during their lifespan.
   a. Recruitment Numbers on a monthly basis
   b. Any change of staff named on the original SSI form
   c. Any amendments – Substantial or Non Substantial
   d. Notification of Trial/study end including final recruitment figures
   e. Final Report & Copies of Publications/Abstracts

Please add this approval to your study file as this letter may be subject to audit and monitoring.

Your personal information will be held on a secure national web-based NHS database.

I wish you every success with this research study

Yours sincerely,

Mrs Elaine O'Neill
Senior Research Administrator

Cc: NRSPcc
Dr Raymond Hamil (NHS Lanarkshire)
Lynsey Cameron (NHS Lanarkshire)

R&D Ref: GN14CP534 - NSA01 dated 07/04/15

Reid, Lorraine [Lorraine.Reid2@ggc.scot.nhs.uk]

Sent: 17 April 2015 12:41

To: Laithwaite, Heather [Heather.Laithwaite@ggc.scot.nhs.uk]

Cc: Lynsey Cameron; Hamish McLeod; Hamill, Raymond (NHS Lanarkshire) - Corporate R&D Manager [Raymond.Hamill@lanarkshire.scot.nhs.uk]

Dear Dr Laithwaite

R&D Ref: GN14CP534
Ethics Ref: 14/WS/1122
Chief Investigator: Miss Lynsey Cameron
Project Title: An exploration of self-awareness of autobiographical memory functioning in forensic mental health service users with psychosis
Protocol Number: V2.1 dated 23/06/2014
Amendment Ref: NSA01 dated 07/04/15
Sponsor: NHS Lanarkshire Health Board

I am pleased to inform you that R&D have reviewed the above study Amendment and can confirm that Management Approval is still valid for this study.

Reviewed Documents:	Version	Dated
Cover email	---	07/04/15
Notification of minor amendment form	V1.0	25/03/15

I wish you every success with this research project.

Yours sincerely
Lorraine

Lorraine Reid
Senior Research Administrator
Research & Development
R&D Management Office
1st Floor, Tennent Institute
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content to any other person.

All messages passing through this gateway are checked for viruses, but we strongly recommend that you check for viruses using your own virus scanner as NHS Greater Glasgow & Clyde will not take responsibility for any damage caused as a result of virus infection.

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Appendix 2.10 Major Research Project Proposal

Major Research Project Proposal

An exploration of self-awareness of autobiographical memory deficits and its impact upon engagement in psychological services, in service users of forensic mental health services with psychosis

Submission date: 23/06/2014

Version number: 2.1

Word count: 3338

Abstract

Background/Aims

Evidence has shown that many people with psychosis have deficits in autobiographical memory (AM). In addition, they often show poor awareness of any deficits in general cognitive abilities and we predict that this will extend to poor awareness of deficits in AM. It is currently unclear if any awareness deficit is specific to AM or is part of a more general deficit in metacognitive ability (defined broadly as the ability to think about thoughts and feelings of the self and others). Alternatively, awareness deficits could be attributable to problems with executive functioning. Gaining a better understanding of these phenomena and their interrelationships is relevant because deficits in these domains are predicted to disrupt engagement in mental health services. This study will examine metacognition, AM, and service engagement in people receiving forensic mental health care.

Methods

Participants' AM and metacognitive abilities will be indexed using existing measures. Awareness of AM abilities will be operationalized as the discrepancy between self-ratings and actual performance. Cognitive functioning will also be tested, specifically short term working memory, executive functioning and immediate and delayed recall. Staff members will rate the service engagement of each participant.

Applications

Impaired metacognition may adversely affect service engagement and participation in psychological therapy. The results of this study will identify potential markers of risk of service disengagement and will identify potential new targets for psychological rehabilitation.

226 words

1. Introduction

Autobiographical memory

One specific aspect of cognitive functioning known to be affected in psychosis is that of autobiographical memory (AM). The term refers to a person's recollection of personal facts and events. AM problems include an over-general style of retrieval and recall difficulties that are significantly worse than impairments in general memory ability (Wood, Brewin & McLeod, 2006). Dimaggio, Salvatore, Popolo and Lysaker (2012) discuss, in detail, further aspects of AM that are disturbed in psychosis. They identify that autobiographical memories in this population often "lack clear space and time boundaries", are "made sense of through the use of intellectualization and moral rules, without a nuanced sense of what actually happened", there can be limited detailed information about sequences of events and people involved, conversations recalled can seem to follow a set pattern rather than reflect the true dialogue, "the narrative theme of the memory may be redundant", and that the memories "lack a pictorial quality" (Dimaggio et al.,2012; p2).

It has been suggested that these issues may contribute to, or interact with, the symptoms of psychosis as they could function to maintain delusional beliefs, negatively impact upon social relationships by impairing theory of mind (Bentall, Corcoran, Howard & Blackwood, 2001), and preventing effective problem solving (Pillemer, 2003, Dimaggio et al., 2012). In addition, Wood et al. (2006) hypothesize that difficulties in AM retrieval may lead to disturbances in the concept of self and contribute to the "inner-outer confusion" that increases problems with reality testing and related attempts to make sense of the world.

Self-awareness, mentalizing, and metacognitions

People with psychosis have been shown to have poor awareness of their cognitive deficits (Medalia & Lim, 2004), and specifically that they over-estimate their cognitive abilities in comparison to healthy comparison groups (Medin & McLeod, unpublished data). Further investigation is required to determine whether people with psychosis have a similar level of unawareness of their deficits in AM. Self-awareness is an aspect of mentalizing (the ability to understand mental states of the self and others) and of metacognitive functioning (thoughts about thoughts i.e. the mental process involved in having an awareness of your own thoughts and feelings, and those of others) (Flavell:1979vd)

Preliminary evidence show that the over-general retrieval style of AM in psychosis is linked to problems in mentalizing (Palmieri, Dimaggio & Gasparre, 2012, from Dimaggio et al., 2012), suggesting poor self-awareness of these deficits. Furthermore, evidence of poor metacognitive ability is well recognised in people with psychosis. For example, Derntl et al. (2009) have shown that psychotic patients can display deficits in all three components of empathy (emotion recognition, perspective taking and affective responsiveness). To be empathic, a person must have the ability to generate a mental model of another's emotions and experiences, a process sometimes referred to as mentalizing. Lysaker, Buck and Ringer (2007) provide evidence of severe problems with recognising other peoples' perspectives, emotions and thought processes in people with psychosis. However, the methods for assessing these abilities are still developing and the strategies that are relevant to the current study are reviewed below.

Methods of assessment

Rating Scales

In order to identify self-awareness of cognitive abilities previous studies (Banks & Weintraub, 2008, and Medin & McLeod, unpublished) have adapted subjective cognitive ability rating scales used in other populations such as people with head injuries or dementia. Medin and McLeod asked people with schizophrenia to judge their cognitive abilities in relation to that of the general population, and the accuracy of this judgement was established by comparing the accuracy of the ratings to that of a control group. They were also asked to rate how well they predict they will do on a test prior to completion, and how well they think they did after completion.

Indiana Psychiatric Illness Interview (Lysaker, 2002)

This is a semi-structured interview developed in order to assess narratives of illness. It looks into four main areas; the life story of the participant, how they understand their illness, how their illness "controls" their life and how they control it, and what they expect for the future. Time is also spent on establishing rapport and the interview is conversational in nature. The interviewer does not ask questions about specific symptoms, but may ask for clarification and further information.

Metacognition Assessment Scale- Abbreviated (MAS-A) (Lysaker et al., 2005). This has been adapted for specific use with the IPII from the original MAS (Semerari et al., 2003), which was created to assess for metacognitive changes in therapy transcripts. The transcript of the IPII is rated to assess metacognitive ability. It focuses on four areas: the participant's "understanding of one's own mind", their "understanding of other's minds", "decentration" and "mastery". Each area has a hierarchical scale, and a participant is awarded one point for each step on the scale that they achieve.

Function of deficits

One hypothesis regarding the function of these metacognitive deficits is that it protects the individual's self-worth and self-esteem and is therefore a self-serving bias (Medalia & Lim, 2004). With reference to a forensic population, Stone (1992) considered that high levels of arousal experienced with trauma and crime may directly inhibit the encoding of AM, leading to the deficits described above, and protecting the individual from distressing memories of difficult events. A person with a diagnosis of psychosis is at higher risk of offending than the normal population (Wallace, Mullen & Burgess, 2004) and a high proportion of service users of forensic mental health services have a diagnosis of psychosis. In apparent opposition to the hypothesis of Stone (1992), McLeod, Byrne and Aitken (2004) discussed the absence of memories for crimes in people in the general prison population, and found no difference in levels of dissociation between violent and non-violent offenders. This suggests that the experience of trauma may not be a factor in preventing the acquisition of memories. They highlighted that, in a forensic population, many people use the defence of automatism, meaning that they have diminished responsibility due to impaired memory for the event. As many of the offenders reported high levels of dissociation, of which poor recall is a factor, for events related to their crimes, there are legal functions for poor AM in this population. The function of poor AM is especially important in this client group as people may attempt, consciously or not, to distance themselves from their crimes.

Engagement

Service users with a diagnosis of psychosis have a reputation for being difficult to engage in mental health services (Tait, Birchwood & Trower, 2003). Ghaemi and Pope (1994) attribute this to poor insight into illness. However, Tait et al. (2003) reported that it was not

insight, but a "sealing over" recovery style, that impacted upon engagement. "Sealing over" involves the patient minimising their symptoms, and the impact that they have on their life. In addition, it involves them having little curiosity into their illness and its impact. Medalia and Lim (2004) suggest that poor insight into cognitive functioning will prevent engagement in specific psychological therapies. If a person does not have an awareness of their symptoms and their impact, or an accurate, detailed recollection of events in their past, they will not be able to make use of therapies that utilise these factors within the work. Dimaggio et al. (2012) also discuss the impact of poor insight on service engagement and suggest that a person's poor metacognitive ability may mean that they are unable to reflect on not only their own mental state, but that of others. Again, this ability is crucial in many forms of psychological therapy which aim to promote metacognitive ability as part of the therapeutic work.

Engagement in forensic metal health services is crucial as it has been shown to reduce the risk of further criminal activity (Swartz et al., 1998a). This means that it is particularly important to clarify factors that impede engagement in forensic mental health services, for service users with psychosis, as it will not only assist in facilitating recovery but will also minimise the risk of further offence. The deficit in AM may further impede the engagement in services of clients in this population as aspects of treatment may focus on the client's criminal history, and their understanding of it. If an individual does not have a clear recollection of their crimes, they are unlikely to engage in services that may focus on these events.

Aims/Research questions

The degree to which psychotic patients are aware of their AM functioning is not currently known. A principle aim of this study is to test the degree to which patients are aware of deficits and the extent to which this is related to metacognitive abilities or general cognitive functioning. We also aim to identify if AM for crime-related memories differs to that for general events. Engagement in forensic mental health services by individuals with psychosis will be investigated by identifying any relationships between engagement and deficits in AM, and the ability to access metacognitions, specifically self-awareness of AM ability.

Hypotheses

(1) Impaired self-awareness of deficits in AM will be shown by a significant discrepancy between perceived ability and actual performance on a modified version of the Autobiographical Memory Interview (AMI).

(2) Scores for metacognitive ability will be low, in comparison to the general population.

(3) Poorer AM specificity will correlate with poorer Self Reflectivity (because the lack of content of AM retrieval will provide little info on which to base SR responses).

(4) AM ability will be poorer for crime related events than for other personally experienced events.

(5) Better AM ability and greater self-awareness will positively correlate with engagement in mental health services.

2. Methodology

2.1 Participants

Participants will be recruited from adult forensic mental health services and so will all be over the age of 18. They will have a diagnosis of a schizophrenia spectrum disorder, determined through access to medical and mental health notes, and discussion with health service staff. In line with the services involved there will be no upper age limit. However people with a cognitive deficit or a documented or self-reported history of head injury with loss of consciousness will be excluded from the study. People under the influence of alcohol or illicit substances will also be excluded, as will those who have used illicit substances within the past twenty four hours. This will be achieved through liaison with the nurse team and review of the patient's medical notes. In addition, those for whom English is not their first language will be excluded, as will any that have been assessed with the same study measures in the past year. Again, this will be identified through access to medical and mental health notes and discussion with staff members.

2.1.1 Sample size

Lysaker et al. (2005) used participants with a diagnosis of schizophrenia and compared scores on the MAS-A with the participant's insight into their illness, measured using the Scale to Assess Unawareness of Mental Illness (SUMD) (Amador et al., 1994). They found that there was a positive correlation between the two (r=0.35, d=0.7), showing that people with greater metacognitive ability also had greater insight into their illness. No comparable study has been done with cognitive ability or AM but given the pilot nature of this study, we argue that insight into illness will be similar to insight into cognitive and AM ability. Therefore, for the purposes of a power calculation, Lysaker et al. (2005)'s effect size of d=0.7 has been used. The power calculation was computed using G-Power software. A

minimum of 13 participants are required for this study to have power (>0.8) to detect a correlation between MAS-A subscale scores and AM discrepancy scores, although the sample size in Lysaker et al. (2005) was 61. It is hoped that time and resources will allow for between 30 and 40 participants to be recruited into this study to increase the power of additional exploratory analyses.

2.2 Recruitment Procedure

Participants will be recruited from NHS Lanarkshire's and NHS Greater Glasgow and Clyde's Forensic Mental Health Community Service. Initial discussion will take place between the staff team and the researcher in order to identify participants who meet the inclusion criteria. Once a person has been identified, initial contact will be made through the health professional (usually a CPN or Psychiatrist) that is routinely involved in the service user's care. They will discuss the project with the service user and ascertain whether or not they would like to be involved. The member of staff will gain verbal consent for the researcher to screen their case notes for suitability and also to contact them to arrange a suitable appointment. Written informed consent will be obtained prior to participation.

2.3 Measures

2.3.1 Demographic information

In order to keep the time required for testing to a minimum this information will be collected, if possible, from case notes and from liaison with the mental health teams involved in the participants' care. Information collected will be age, gender, occupation, education, diagnosis, duration of illness and current medications.

2.3.2 Test of cognitive functioning (as in Wood, Brewin & McLeod, 2006)

Digit Span (WAIS/WAIS-IV, Wechsler, 1998; Wechsler, 2008) – an auditory measure of short term working memory and executive functioning.

Story Recall (BMIPB, Coughlan, Oddy & Crawford, 2007) – this includes immediate and delayed recall abilities.

Test of Premorbid Functioning – UK version (ToPF-UK) – a test of pre-morbid IQ

2.3.3 Measure of autobiographical memory

Rating scale

Using a similar method to Medin & McLeod (unpublished), prior to testing participants will be provided with a brief description of what AM is and asked to rate their ability to retrieve AM on a five-point scale ranging from perfect, to good, to neither good nor bad, to some ability, to no ability. They will also be asked to rate this ability in comparison to that of the general population, also on a five-point scale, with the options of very high, above average, average, below average, and very low. They will then be asked to repeat these measures after testing is complete. Prior to completing the AMI, they will be asked to predict how well they think they will do in the test, again on a five-point scale.

Autobiographical Memory Interview (Kopelman et al., 1990). Participants will be asked to recall events from childhood, early adulthood and recent events. After completion they will be asked to rate how well they think they have done on the test, using the same rating scales as used pre-assessment.

Memory for offence – as in McLeod, Byrne & Aitken (2004), participants will be asked to rate their level of recall in relation to their criminal history on a 10-point Likert scale. This will range from 0, where the participant has no memory at all, through to 10, where they have perfect memory. This has been designed so that participants do not need to recall and report specific information about their crimes, minimising potential distress and the likelihood of concealing information.

2.3.4 Measure of metacognitive ability

Indiana Psychiatric Illness Interview (Lysaker et al., 2002). This interview is described previously. It is anticipated that this will last approximately 30-45 minutes.

2.3.5.Measure of engagement

Service Engagement Scale (SES) (Tait et al., 2002)

The SES is a therapist rates, 14-item measure that assesses client's engagement. Staff rate items using a four-point Likert scale from 'not at all or rarely' to 'most of the time', which results in a total score of between 0 and 42. Higher scores indicate lower engagement. There are four subscales: availability, collaboration, help-seeking, and treatment adherence. High internal consistency and retest reliability have been shown. (Tait et al., 2002)

2.3.6 Design

The study will be a within-subjects, cross-sectional design.

2.3.7 Procedure

All measure will be administered in one sitting, lasting approximately 90 minutes. A 15 minute break will be offered, at an appropriate point approximately half way through the session, in order to prevent fatigue.

3. Data Analysis

3.1 Scoring

AMI

As in Wood, Brewin and McLeod (2006), staff members will be consulted to assess whether memories may be delusional, in which case they will be scored as 0.

Awareness Score

As in Medin and McLeod (unpublished) a score for self-awareness will be calculated, taking into account the difference between actual ability and perceived ability of AM. The participant's ability to monitor deficits will be calculated by comparing scores of the ratings completed after testing to actual scores.

MAS-A

The IPII will be transcribed and scored using the MAS-A criteria. This will be completed between the researcher in Glasgow and the IPII developers in the United States.

Blind rating

The IPII developers will be blind to the participant involved, but it will not be possible for the researcher to be blind.

Double rating

10% of the AMIs and MAS-As will be double rated to ensure inter-rater reliability.

3.2 Statistical analyses

Tests for normality and homogeneity of variance will determine the nature of the data. Demographic information will be compared between the two groups as any covariates identified may impact upon AM and self-awareness, and so it may be necessary to adjust analyses to account for any differences.

It is planned that a chi-squared test will be used to compare scores for perceived AM ability and actual ability. Correlations will be used to identify relationships between MAS-A scores, AMI scores, awareness of AM, and cognitive functioning scores. A t-test will be used to compare memory ability for crime related events with memory for other life events. A regression model will be used to identify if metacognitive functioning, AM ability, self-awareness of AM, or cognitive functioning can predict service engagement. Preliminary

regressions will be used to identify any potential relationships between the factors identified.

4. Health and Safety Issues

See appendices

5. Ethical Considerations

Participants will be required to have given informed consent before taking part in the study. Through discussion with staff and access to medical files, only people with capacity to consent to participation will be recruited. Only participants who are considered psychologically and physically fit enough will be accepted and any potential participants who become unwell or distressed over the course of recruitment and participation will be excluded and the contact discontinued, although this may bias sampling. All measures used in this study have been utilised in similar research previously, where they have been generally acceptable to participants and have not caused significant distress. Given the increased risk when discussing offending history the participants are asked them to only rate their recall ability between 1 and 10, giving participants choice and control over what to recall or report. It is unlikely that the participants could come to harm through the process of taking part but they will be provided with contact details for the health professional responsible for their care, in case any issues arise for them following participation. A member of the mental health team will be available for the duration of the session, should the participant require support. Participants will be informed of their right to choose not to provide information or to have their information removed at any time. All data and recordings will be stored securely, in compliance with NHS Lanarkshire and The University of Glasgow policies.

Full ethical approval will be required for this study.

6. Costs

See appendices

7. Timetable

Task	**Planned Date**
Proposal first draft	27/01/2014
Proposal final submission	14/04/2014
Submission to ethics	July 2014
Systematic Review Outline	August 2014
Commence data collection	Sept 2014
Systematic Review Draft	Feb 2015
Data collection complete	May 2015
Data analysis complete	May 2015
1st draft submission	June 2015
2nd draft	July 2015
Submission	July 2015
VIVA	Sept 2015

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